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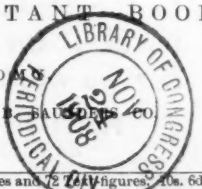

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An Address
ON
THE CLINICAL EXAMINATION OF THE URINE WITH ESPECIAL REFERENCE TO THE ESTIMATION OF UREA.

Delivered before the Manchester Clinical Society on Oct. 20th, 1908,

BY ARTHUR FOXWELL, M.D. CANTAB., F.R.C.P. LOND.,

SENIOR PHYSICIAN TO THE QUEEN'S HOSPITAL AND PROFESSOR OF THERAPEUTICS IN THE UNIVERSITY, BIRMINGHAM.

MR. PRESIDENT AND GENTLEMEN,—Let me first thank you very heartily for the honour you have done me in asking me to deliver this address. I can only hope that you will find in it something of interest and profit.

I was brought up in the creed that albumin was the pathognomonic sign of kidney disease; the presence of albumin meant disease, its absence meant health; and, so far as I know them, the insurance offices still act upon this faith. This reminds me of a middle-aged practitioner who sent me a sample of urine when I was pathologist to the General Hospital, Birmingham. He came in a hurry next morning and asked if I had examined it. I replied, "Yes," and gave him my written report. But he would none of it, insisting on one question only: "Is there albumin?" "Yes," said I, "but——." "Ah! never mind, never mind," said he. "Albumin ergo Bright's. Bright's ferri; I shall give him iron. Thanks very much"; and off he rushed. The curt dogmatism of this syllogism is amusing, especially the latter part which asserts that iron is the only remedy; and I was tickled at his use of the genitive ferri, for it showed how ardent a prescriber he was. Yet if we limit the term "Bright's disease" to active inflammation, then the statement "Albumin ergo Bright's" is not so far wrong, and if we reverse it to "Bright's ergo albumin" it is practically correct, for very rare are the instances of acute or subacute nephritis in which albuminuria is absent.

But the diagnosis of acute or subacute nephritis is a comparatively simple matter. I do not wish in any way to consider it to-day. My endeavour is to find out what aid the examination of the urine can give us in diagnosing the amount of wreckage, if any, which the nephritis has left behind it. This wreckage is often designated "chronic nephritis"; it is an unhappy term. The slow cicatricial changes which continue after acute nephritis are in essence curative, not inflammatory; moreover, we do not know that they *are* continuing. Judging from the scarring after burns, I should imagine most is done in the first six months, and that then the condition becomes almost stationary, if not disturbed by fresh attacks of inflammation to which its dilapidated state naturally renders it more liable. There is a kidney similar to this post-nephritic one which has not sprung from any traceable nephritis. The individuals of some families are born with weak hearts; the pulse is always feeble and the cardiac cavities too readily dilate; others have lungs which become emphysematous at an early age without obvious cause. So do some children early show the signs of renal fibrosis; usually they come of a gouty stock and the kidney tissue appears unable to bear with impunity the metabolic irritations to which it is subject. It is the consideration of what aid the clinical examination of the urine can give us in diagnosing this damaged or degenerating kidney that I wish, with your kind indulgence, to devote myself this afternoon.

You will observe I use the term clinical—and of set purpose. I am confining myself to such examination as can be done in the ordinary routine work of daily practice; such examination as I always do myself in every case which comes to me showing the remotest suspicion of renal inadequacy—in at least half my patients. It is, moreover, an examination which I have insisted on in every hospital patient under my care. Never do I allow house physician or clerk to make an incomplete one; incompleteness, like every other form of inaccuracy, is misleading; it lulls you into a false sense of security; no examination at all is better, for then are you still kept alert on the tenter-hooks of uncertainty.

This examination consists of three parts: Physical—the weight, the appearance, and the quantity of that which is passed in 24 hours; chemical—its acidity, percentage and amount of urea, presence of phosphates, albumin, blood, and sugar; and microscopical—crystals, cells, and casts. The physical and chemical take five minutes, the microscopical also five, for, besides the actual looking through the microscope you have either to centrifuge or set it aside for 24 hours for any sediment to settle. Obtaining the quantity needs patience and persuasion. I give my patients this little printed slip[1] which greatly helps me; but even so, I have to go carefully over each point with them, especially such points as no urine must be passed at the closet but all saved for the chamber, and that it is only a sample I need, for I used to be deluged with wine bottles containing the whole daily output—these same bottles are very useful for men to take to their office, or in their bag when travelling, so that into them they may pass what is needful during working hours. If men are married there is not much trouble, but bachelors are kittle cattle.

Let us now consider the relative values of the various items in this examination. In 1884, when I was resident medical officer at the General Hospital in Birmingham, I admitted a man with scanty urine containing a thick cloud of albumin, a failing hypertrophied heart, and much œdema; the heart grew stronger, the quantity of urine increased to normal and the œdema nearly vanished, whilst the albumin decreased till one morning I was surprised to find that there was none, nor was I able to detect any on six successive mornings thereafter. As I was convinced that this was a case of primary renal, and not cardiac, disease, I was nonplussed, for at that time I believed albuminuria to be the chief sign of chronic renal degeneration. A week later this man's heart began to fail again, his urine grew scanty, and the albumin reappeared. In a fortnight he was dead. His kidneys weighed 2½ ounces each and were in an advanced state of fibrosis; the heart showed secondary hypertrophy and dilatation. Now these kidneys were not inflamed, their condition was one of fixed and permanent damage and could have undergone no appreciable change during the man's short stay in hospital; but the albuminuria was different: it went and came according as the heart grew strong or weak; it was evidently a cardiac albuminuria and not a renal one; as a guide to the renal condition it was useless, as it vanished when the heart worked well. Some cases impress one greatly; this did me, and I at once made up my mind that the presence or absence of albumin in the urine was of very little help in the diagnosis of permanent renal damage. This mental state I have never found reason to change, for even after death I have tested for albumin the urine in the bladder of men who have died suddenly and found none, though the kidneys showed an advanced state of renal cirrhosis.

But having proved one guide to be fallible I must needs seek another, and, being young, I naturally turned to the microscope; casts and cells are surely indicative of serious mischief. Alas, even if they be, how often are they absent! How often do we time after time examine the urine of a cirrhotic kidney and detect neither of these in the scanty sediment we find. Moreover, is not the converse equally true? Do we not frequently turn up a casual hyaline, or even granular, cast, or a cell which is surely a renal one, in the urine of patients whose kidneys we are convinced are for all practical purposes healthy. And this seems to me to be what we ought to expect; casts and cells are but renal expectoration. Do we condemn a man to permanently damaged bronchial tubes because once or twice he has expectorated half a teaspoonful of frothy mucopus? However much we might wish to magnify our office the most we could do would be to dignify this with the name of slight bronchial catarrh and to assure our patient that it will leave his tubes as healthy as it found them. Indeed, often it may mean but a small local lapse of function of not even temporary importance. Casts are easy to detect, but have cells always their locality displayed upon them? An able but enthusiastic

[1] Dr. Foxwell requests you to—1. Save all the water you pass in 24 hours, say from 5 P.M. one day to 5 P.M. the next. 2. Place it in one chamber. 3. Measure it carefully and tell him how much it is. 4. Send him a sample of it—say six ounces—in a medicine bottle by parcel post in a box.

pathologist once sent up a report on the urine of a male patient of mine—one of his statements was "plenty vaginal epithelium"; and, as the pavements of the vagina are sometimes indistinguishable from those of the bladder, so are those of the deeper layers of the bladder from some of the renal pelvis and larger tubules. I believe this is so to those who see them every day; certainly, it is to those who look for them daily, but see them only once a week or fortnight. Casts and cells, like albuminuria, are good guides during active mischief, but they do not help us much in estimating the after damage which is so much harder of diagnosis. Even during active mischief they tell us only of the structural changes but nothing of functional capacity.

These three are abnormal constituents of the urine and, they having failed, there was left the other great division of normal constituents. Would changes in these prove of more avail than the presence or absence of abnormalities? To decide this question has been a matter of the greatest interest to me. During the past 15 years in hospital and private cases I have insisted upon examining both normal and abnormal constituents, and to-day I am firmly convinced that we can obtain much more definite knowledge of kidney capacity from noting changes in the normal than from determining the existence of the abnormal. In passing I would say that this is only an exemplification of a general principle in diagnosis. In heart disease the alteration in the shape of the heart is of far more value than the detection of murmurs. Not long ago I saw in consultation two patients where the diagnosis between aneurysm of the ascending arch and aortic valve disease was made almost entirely by the position of the heart's apex. Again, in the early diagnosis of phthisis one soon learns to place little reliance on the presence or absence of adventitious (i.e., abnormal) sounds, but to ground one's diagnosis on the changes which have taken place in those which are normal (i.e., in the percussion note and breath sounds). If this be true of the diagnosis of organic change it is evidently far truer of the estimation of functional capacity. After all, when a patient comes to you for help it is better function, not structural alteration, he desires. If you can make him function well he is satisfied and will not trouble to inquire about mere structural defect. As healers of the sick, then, those signs which best tell us of the state of the body functions are to be chiefly valued. Especially is this so when we are dealing with chronic ailments in patients still able to go about their daily duties. And is not this class the most wearisome and difficult of all and perhaps the most numerous? But with patient investigation how often do we find that, at the bottom of all the pains and aches, lies inadequate function of some one organ or other, and rejoice to see that, when we limit the output of this to an amount suitable to its impaired capacity, surely, though perhaps slowly, the troubles vanish and a pleasant life on a lower level is led, instead of the previous painful spurts along the higher one—spurts often interrupted by periods of no work at all.

Turning now to these normal constituents, the mere qualitative testing of the acidity does not help us much in estimating functional capacity, though a strongly acid urine usually indicates a high percentage of solids. Specific gravity is a more important matter; the persistence below 1012 is good evidence of marked permanent inadequacy, provided the patient be on a normal diet and leading an ordinary life, but I have come across few kidneys which cannot on isolated occasions secrete urine varying from 1005 to 1030. Hence in examining an isolated specimen the weighing of the urine is of but little value. Even when dealing with 24-hour specimens the weight varies within wide limits in the same individual on different days. There are few kidneys, however bad, which cannot occasionally do a decent day's work, and there are few kidneys, however good, which do not sometimes fall far short of their usual performance. A urine with an average weight for 14 days of 1011 had daily averages varying from 1005 to 1030; another similarly weighed 1021, with daily averages of from 1005 to 1031; another 1013, varying from 1009 to 1021; another 1014, varying from 1009 to 1022; another 1024, varying from 1010 to 1032; and so on. The same variation holds good when the urine of different individuals is compared over considerable periods of time. On referring in the accompanying tables to the 37 cases with healthy kidneys we find the average specific gravity of them all is 1019, but two cases had an average of only 1010. Again, in those 15 with damaged kidneys the general average is 1012, but two cases had an average as high as 1016.

When we remember that all healthy organs can do work considerably beyond what they are normally required to do we cannot be surprised that even considerably damaged kidneys can on occasion do work up to the normal. This is true not only of the weight but of all the normal attributes; these are always present, though ever varying, whereas the mere finding of the abnormal is the evidence of disease; examination of an isolated specimen containing casts and cells may assure us of our diagnosis; whereas, with the normal, it is only by repeated investigation of 24 hour samples that we can come into the harbour of knowledge. But what a difference in the nature of the knowledge attained. The former tells us of changes in structure, changes we can learn still better after death, from the mere lifeless form; but the latter tells of the real living activities that are actually proceeding, and of how those of yesterday differ from those of to-day. The one is a knowledge of the very life of an organ, the other of the senseless frame from which that life has fled. The abnormal tells how an organ is structurally damaged so that by experience we may infer what functions it can do; but our inference is mere guesswork and often sadly wrong. The normal leaves nothing to inference: it tells us directly of what is going on at the moment, so that he who runs may read.

Quantity is more important than weight and much more difficult to get; luckily our patients do this for us. Persistent increase to 60 ounces or more is indicative of renal fibrosis just as a weight of below 1012 is so indicative; usually, in cases of renal fibrosis, there is always this increase if a man is capable of going about and doing his work: at any rate, if there be not, the fibrosis is not of large amount. But with invalids fibrosis may be present with even diminished quantity, and the less the quantity the graver the condition becomes, for it points to heart failure.

Quantity and weight together give us definite knowledge of the total solids in the urine, for if you multiply the last two figures of the specific gravity by 2·2 you get the number of grammes of solids per litre, and if the quantity is also known the total solids passed per diem is easily found. For example, if the specific gravity be 1020 then we have 44 grammes per litre, and if the quantity passed in 24 hours be 1½ litres we get 66 grammes (1020 grains) as the excretion of total solids during that day. As the solutions of these solids when of equal strength have very different weights it is evident that this method will not give us accurate information regarding the excretion of any one solid. For instance, a 10 per cent. solution of sodium chloride weighs 1073, whilst a 10 per cent. solution of urea weighs only 1028. Hence, if the heavier solutions—e.g., chlorides and sulphates—be in small amount there may be a low specific gravity, though the lighter solutions, such as urea, may be in normal amount. Hence the specific gravity is no guarantee of the urea percentage, though I must admit there is a general tendency for the specific gravity and percentage of urea to vary directly with one another, but not *pari passu*, and with many exceptions; it is one of those uncertain relationships in which no reliance can be placed. For instance, in a case of subacute nephritis I found on three days the same specific gravity, 1020, but the urea percentages were 1, 0·8, and 0·7; again, on two days a specific gravity of 1025, but the urea percentages 1·2 and 0·9. So in the averages obtained from the fortnightly records with different individuals, we find different relationships between urea and specific gravity. For instance, a man with cancer of the stomach has an average specific gravity of 1015, with an average urea excretion of 2·4, whereas a girl with bronchiectasis similarly has 1024 and 2·4; again, one boy with chorea has 1018 and 1·8, another boy with the same disease has 1017 and 2·6. If we know the urea percentage and the specific gravity then we also know whether the other solids are in excess or not. But we know of them only in the lump; if we wish to know the amount of any one we must examine for it separately. To do this for them all is evidently a work of time and impossible of routine performance. Nor do I think the knowledge gained of much importance. I have tried it but learnt very little.

Urea, which contains 85 per cent. of the urinary nitrogen, is the important substance to determine when endeavouring

to discover the condition of the nitrogenous metabolism of the body. Nitrogenous metabolism is on all hands admitted to be the most difficult of all metabolisms, the one which is most frequently defective, and the one failure of which causes the vast majority of the ailments and degenerations to which life is liable.

If a man has diabetes mellitus the quantitative estimation of the urinary sugar is made at once and often repeated, so that an idea of the progress of the case may be estimated. I cannot for the life of me understand why the gouty man is not similarly examined with regard to his excretion of urea, especially as the procedure is so much simpler and speedier. The amount of assistance its routine performance has given me in the treatment of visceral and atonic gout and of what is called muscular rheumatism is of the very highest value; nothing would induce me to forego it. But it must be done as an everyday routine and not confined to gouty cases or one's view of nitrogenous metabolism becomes narrow and imperfect. The hypobromite method is the one I have always used. It is not very accurate, extracting only 92 per cent. of the total nitrogen in the urea, the remaining 8 per cent. being converted into cyanates; on the other hand, it

TABLE I.—*Patients with Diseases involving previously Healthy Kidneys.*

Name.	Years of age.	Period tested.	Disease.	Sp. gr.	Amount.	Urea.		Abnormal constituents.
						Per cent.	Grains.	
W. E.	23	17 days.	Infective endocarditis.	1013	43	1·6	306	Dense cloud, with hyalines and granulars throughout. Right kidney, 8½ oz.; left kidney, 9 oz., congested, with round-cell infiltration.
V. P.	24	9 ,,	Infective endocarditis.	1011	43	1·2	234	Cloud, hyalines, and granulars throughout. Right kidney, 6 oz.; left kidney, 4 oz., congested, with round-cell infiltration.
J. H.	42	15 ,,	Heart block. Mitral.	1019	30	1·9	262	Dense cloud, with hyalines and granulars throughout. Kidneys 5 oz. each. Tubules much degenerated; glomeruli small and crowded in some places.
Average ...	—	—	—	1014	39	1·6	267	—

TABLE II.—*Patients with Subacute Nephritis on Damaged Kidneys.*

Name.	Years of age.	Period tested.	Sp. gr.	Amount.	Urea.		Abnormal constituents.
					Per cent.	Grains.	
A. S.	27	18 days.	1010	63	1·3	350	Albumin 2/1000; blood; epithelials and granulars.
C.	42	6 ,,	1016	56	2·4	410	Albumin 3½/1000; blood; epithelials, hyalines, and granulars.
N. P.	30	11 ,,	1014	33	0·7	83	Albumin 10/1000; blood; epithelials, hyalines, and granulars.
M. H.	6	16 ,,	1009	21	0·8	88	Thick cloud; blood; epithelials, hyalines, and granulars.
E. J., 1st admission	36	18 ,,	1017	26	1·5	165	Dense cloud; blood; epithelials and granulars.
,, 2nd ,,	,,	10 ,,	1014	47	1·1	242	Becoming chronic.
Average	—	—	1013	41	1·3	223	—

TABLE III.—*Patients with Damaged Kidneys.*

Name.	Years of age	Period tested.	Sp. gr.	Amount.	Urea.		Abnormal constituents.
					Per cent.	Grains.	
L. J.	56	4 years.	1010	52	1·0	229	Usually dense cloud and granulars during the whole four years.
C. S.	39	11 ,,	1005	85	0·8	300	Cloud throughout (11 years).
T. H. B.	54	3 days.	1008	95	1·4	585	Haze; no casts.
J. A. S.	54	19 years.	In '89 1011	71	1·0	312	Dense cloud, epithelials, hyalines, and granulars.
			Since 1014	54	1·6	380	Haze, hyalines in ¼ and granulars in ⅓ of the examinations.
W. B.	23	29 days.	1013	46	1·2	243	Cloud throughout, occasional hyalines and granulars.
L. T.	—	20 ,,	1008	56	1·1	235	Cloud throughout, occasional hyalines and granulars.
J. T.	—	14 ,,	1013	46	1·1	225	Haze throughout, granulars once.
W. L., 1st admission	26	33 ,,	1017	78	0·9	292	Dense cloud throughout, occasional granulars and hyalines.
,, 2nd ,,	,,	15 ,,	1010	86	0·8	311	
Average... ...	—	—	1011	67	1·1	311	—

gets some 2 per cent. from the creatinin, uric acid, &c., so that on the whole the nitrogen obtained is about equal to 94 per cent. of that existing in the urea. It is somewhat expensive, as the hypobromite is costly and quickly decomposes on keeping; but its simplicity and speediness—it takes no longer to estimate the percentage of urea than to test for the mere presence of albumin—far more than make up for its defects as a clinical method of examination.

The percentage of urea varies within wide limits with healthy kidneys; the upward limit may be over 4 per cent.; the lower for any one day may be below 1·0, but an average of anything below 1·4 during 10 to 20 days nearly always indicates renal damage. In 37 patients (vide Table IV.) suffering from various non-renal diseases, where the urea percentage of each was estimated for periods varing from 4 to 42 days, the grand average came out at 2·0; that is, about normal. Three had an average as low as 1·3; they suffered respectively from carcinoma of the rectum and liver, rheumatoid arthritis (a very feeble woman who could not move because of pain), and gouty gastritis. One had a percentage of 0·7 only, but this was a case of hæmorrhagic gastric ulcer and the proteid intake was chiefly given in the shape of enemata; another, a case of ulcerative colitis, had 0·9—here again feeding was difficult, there was considerable diarrhœa, and the man was at a very low ebb throughout the period of estimation, though, after appendicostomy, he made a rapid recovery. Of the remaining 32 all had a percentage of 1·4 or more. Therefore I have concluded that, unless there be some very special interference with metabolism, the ordinary person lying in bed will, on the average, pass urine containing a solution of urea of a strength not less than 1·4 per cent. This, as far as my tables, which contain only 11 women, go, holds good for both sexes, the grand average for the women being 1·8 and for the men 2·1.

If we now turn to the six cases of subacute nephritis (Table II.) occurring in already damaged kidneys we find an average percentage of 1·3, only a little more than half of those with normal kidneys. This shows strikingly the difficulty the damaged kidney has in secreting a strong solution. The same holds good of the other solids as the lowness of the specific gravity tells us. In fact, a damaged kidney can only excrete the proper amount of solids by increasing the quantity of liquid. At the same time we must remember that the percentage of any one day's excretion may be most misleading. Take the case of M. H. (Table II.) with an average of 0·8, one day it was 1·8; so W. L. (Table III.), with an average of 0·9, on two days had a percentage of 2·0. And these variations arise when the urine of the whole 24 hours is sampled; one can imagine how futile then it is to attempt to learn anything from the examination of the urine passed on any chance occasion. These cases of nephritis, though all passing blood, degenerated cells with hyaline, granular, and epithelial casts, were not of a dangerous type; they all went out relieved. In all of them the kidneys were damaged before the oncoming of the present nephritis. The determination of this most important point is another instance of the value of estimating the normal constituents. In primary acute nephritis the quantity is greatly diminished but both specific gravity and percentage are up to or above normal. In damaged kidney without any existing inflammation the specific gravity and the percentage are diminished but the quantity is increased. The type of the one would be 1030, 20 ounces, 2·5, 220 grains; of the other 1008, 70 ounces, 0·7, 216 grains. By comparing these types with the analysis of the urine in question you can with experience come to a very fair judgment both of the existing nephritis and of the previous damage.

When we come to examine the total quantity of urea excreted we get but a small difference between the two classes. The average daily output of the healthy kidneys is 289 grains, of the damaged 278, a difference of 11 grains only.[2] This only shows us that it is not so much the actual amount of work which tells of disease but rather the ease with which that amount is done. This is so with all organs; however low the ebb of life may run a minimum of work is required for existence; this the healthy organ performs with ease, but the diseased one only with labour. Thus the damaged kidneys excrete their necessary minimum, but only by means of a labouring circulation, as shown by the excessive amount of water (67 ounces) and the high pressure of the blood and the hypertrophied heart which accompany this excess; whereas the healthy kidneys secrete a somewhat larger amount with so little trouble that only 36 ounces of water are required—about one half.

If we rest content with learning the quantity passed on any one day we may be greatly deceived. Take F. F. (Table IV.) with an average daily excretion of 314: on one day he passed 615, on another only 168, yet he was confined to bed on the same diet throughout. Here, it is true, variations in the ascites and pleural effusion may have complicated the conditions. But take J. F. (Table IV.) with an uncomplicated mitral regurgitation and an average excretion of 385 grains: on one day he passed 660 and on another 246 only. Hence it is impossible to form a judgment of the kidneys' capacity to excrete urea from the estimation of one day only. However, it is evident from the figures, I think, that the quantity is of great assistance in diagnosing functional capacity if we spread our estimations over a considerable period of time. We must be careful to make our comparisons not with the healthy kidneys of diseased persons such as I have tabulated, but with those of healthy people who are going about and living an ordinary life; such people, if men, excrete about 480 grains of urea a day, if women 380. Using these figures as our standards, I should judge that a daily output of 200 grains for a woman and 250 for a man are the lowest amounts on which they can respectively permanently exist without losing ground. In other words, stable existence, at however low a level, requires this much excretion of nitrogenous waste. It is evident that people so living would have fragile lives and be unable to stand any severe strain.

Turning now to the cases of damaged kidney (Table III.), let me say at the outset that very likely you will not agree with me in my diagnosis but would rather place them with the nephritic class. It seems to me an abuse of terms to characterise as an inflammation a state which practically continues without change over a number of years. I have purposely selected very bad cases where abnormal signs were present throughout, as I want to emphasise my point that the presence of these does not necessarily mean inflammation; they may occur in kidneys which are only degenerated. The first four were going about and doing work; they passed on an average 73 ounces of urine and 369 grains of urea; the last four were confined to bed and similarly passed 57 and 251; but the percentage of both series is practically the same (1·1), whilst the specific gravity of those in bed (1012) is actually higher than those at work (1009)—that is, the kidneys of both series had the same capacity for excreting urea and those in bed had a greater capacity for excreting other solids, but those who were up and about were forced to excrete more urea and so had to call upon the heart to assist them. I will now discuss in detail these four cases who were up and at work as they all offer points of considerable interest.

L. J. (Table III.) is evidently a borderland case. Some might call it a case of nephritis, and indeed once, midway in the four years during which I watched him, he must have had a slight subacute attack whilst on a visit to Switzerland, as the records kindly sent me by the medical man who attended him plainly show. But I never personally detected evidence of nephritis, though he was on a slightly lower level after the Switzerland attack. The average analysis of 50 examinations made during the whole of the four years was 1010, 51·5, 1·075, 244; in the first two years it was 1011, 50·0, 1·15, 253; in the last two 1010, 53·0, 1·0, 233. From the first he was sailing very near the wind. An excretion of only 250 grains in a man weighing 10½ stones, who was moving about and working half-time as a merchant, is evidently very inadequate. So it proved in his case, for any small depreciation in the excretion was always accompanied by constitutional upset and confinement to bed. He died suddenly from pontine hæmorrhage. His kidneys weighed 6 and 7 ounces. The pathologist who made the post-mortem examination found it impossible accurately to label them, but roughly they were a mixture of large white and contracted granular, a form of "mixed kidney" in which there was less fibrosis than usual. There was no evidence of active inflammation.

[2] Or, if we take those with existing active inflammation, we have an average of 223 grains, giving a difference of 66. The active inflammation prevented their excreting a large quantity of water, hence the amount of urea is lower than in the merely damaged kidneys, though their actual percentage is higher.

C. S. (Table III.) I have watched for 11 years. He nearly always reports himself as in capital health. He has to be very careful; his nitrogenous intake is small and he practically lives on a milk diet. Still, throughout he has worked hard and has had a good deal of anxiety in his business. He came to me because he had had several severe pyrexial gastro-enteric attacks resembling ptomaine poisoning. These he has been free from of late years. His percentage of urea and specific gravity is largely a question of age. When C. S.'s heart will begin to fail is a problem I often ponder. He comes of a good cardiac stock and has been a clean liver. I think he will see 60 unless he be cut off by some acute disease, but his heart must not allow the quantity of urine to fall below 70 ounces—i.e., 246 grains of urea; and even with 70 ounces his life must needs be passed on a much lower level than at present.

Another interesting case is that of T. H. B. (Table III.).

TABLE IV.—*Patients with Healthy Kidneys.*

Name.	Years of age.	Period tested.	Disease.	Sp. gr.	Amount.	Urea.		Abnormal constituents.
						Per cent.	Grains.	
			Females.					
I. K.	22	15 days.	Gastric ulcer. Hæmatemesis.	1010	29	0·7	82	Haze twice; fatty casts once.
L.	50	8 ,,	Gallstones.	1015	31	1·3	194	*Nil.*
E. Y.	27	19 ,,	Gastric ulcer.	1016	34	1·8	262	*Nil.*
A. W.	26	14 ,,	Bronchitis.	1019	28	1·6	197	*Nil.*
L. W.	40	18 ,,	Pericarditis.	1015	40	1·4	234	Hyalines once.
T. C.	35	16 ,,	Graves's. Dilated heart.	1019	32	2·1	274	Haze five times.
K. H.	36	42 ,,	Rheumatoid arthritis.	1013	31	1·3	175	Haze twice.
C. H.	14	13 ,,	Tuberculous peritonitis.	1024	16	2·3	116	*Nil.*
R. N.	17	14 ,,	Bronchiectasis.	1024	28	2·4	296	Haze thrice.
A. W.	17	14 ,,	Hysteria.	1023	21	2·7	248	*Nil.*
B.	—	15 ,,	Pyloric stenosis.	1028	21	2·3	197	—
Average ...	—	—	—	1019	28	1·8	207	—
			Males.					
H. S.	42	14 days.	Colitis.	1010	48	0·9	188	Haze eight times; hyalines once; granulars twice.
S. D.	32	14 ,,	Pleurisy.	1015	36	2·1	336	*Nil.*
W. P.	43	11 ,,	Hæmatemesis.	1013	64	1·4	366	*Nil.*
J. Y.	58	8 ,,	Cancer of liver.	1013	50	1·3	323	Haze throughout.
F. F.	46	12 ,,	Cirrhosis. Ascites.	1014	43	1·5	314	Haze three times.
N.	—	7 ,,	Carcinoma ventriculi.	1015	47	2·4	525	*Nil.*
A. R.	17	14 ,,	Empyema.	1017	42	1·9	330	*Nil.*
J. C.	18	13 ,,	Pneumonia.	1022	32	3·1	350	*Nil.*
W. B.	50	4 ,,	Gastritis.	1018	40	1·3	216	*Nil.*
W. W.	56	15 ,,	Mitral. Ascites.	1033	12	3·3	174	*Nil.*
J. R.	—	17 ,,	Pericarditis. Ascites.	1020	14	2·2	98	*Nil.*
W. F.	33	4 ,,	Tabes.	1014	36	1·4	227	*Nil.*
W. T.	21	14 ,,	Acute rheumatism. Mitral.	1026	36	2·6	389	Hyalines once.
F. W.	—	16 ,,	Double aortic.	1026	21	3·1	278	Haze throughout; hyalines thrice; granulars once.
J. P.	28	16 ,,	Aneurysm.	1023	27	2·7	305	Hyalines twice.
W. G.	16	15 ,,	Chorea.	1018	47	1·8	360	Hyalines and granulars twice.
J. F.	53	11 ,,	Mitral.	1022	38	2·2	385	*Nil.*
H.	—	14 ,,	Gastritis.	1017	43	2·0	368	*Nil.*
J. N.	11	35 ,,	Chorea.	1017	32	2·6	318	Haze eight times.
F. R.	45	26 ,,	Muscular rheumatism.	1023	35	2·0	274	*Nil.*
H. S.	23	14 ,,	Pleuro-pneumonia.	1021	52	1·9	460	*Nil.*
R. T.	37	14 ,,	Old myocarditis.	1014	56	1·4	331	*Nil.*
J. W.	38	14 ,,	Pleural effusion.	1016	50	1·4	313	*Nil.*
J. H.	42	16 ,,	Cirrhosis. Ascites.	1027	20	3·0	264	Hyalines twice.
C. H.	31	15 ,,	Old myocarditis.	1020	38	1·8	224	Haze six times.
Y. G.	—	15 ,,	Bronchiolitis.	1016	50	2·4	450	Haze 11 times.
H.	21	8 ,,	Chronic bronchitis.	1016	44	2·4	490	No albumin; granulars seven; fatty four times.
M. B.	71	9 years.	Acute nephritis 9 years ago.	1013	50	2·1	471	Haze throughout.
Average ...	—	—	—	1019	39	2·1	321	—

show that his kidneys are in a worse functioning condition than those of L. J. (Table III.). Yet he has no swelling of the legs as the other always had; you might live with him a month and not know him to be an invalid save for his eccentricity of diet. L. J. was frequently ailing. The difference lies in the cardiac strength: this man's heart can keep up a daily excretion of 85 ounces without showing any sign or symptom of fatigue or dilatation. L. J.'s heart was always dilated and not seldom showed mitral leakage. This So low a percentage as 1·4 with such a large output as 585 is pretty sure evidence of damaged kidneys; healthy ones would have made it 2·5 and 53 ounces. He could only do it by taxing his heart to the extent of 95 ounces per diem. This one could scarcely expect a heart 54 years old to continue doing with impunity. And he came to me complaining of anginoid attacks and palpitation. But why should he secrete 585 grains of urea? I could find no reason for this by physical examination. On inquiry I learnt that he had for

some time felt weary and tired, unable to take his usual exercise, and that he had tried to bolster himself up with six meals a day—three of them good meat meals and all of them nitrogenous. The remedy was obvious; to halve his nitrogenous intake, to insist on his taking plenty of gentle outdoor exercise, and to give him a sedative to calm his overwrought nervous system.

J. A. S. (Table III.) is very interesting as a case showing distinct improvement occurring in a chronically damaged kidney. He came to me in 1889 because he had just been refused for insurance at any premium. At the outset I was able to give him a fairly hopeful prognosis, as though his percentage was low yet his quantity was moderately good and his heart gave no signs of being overworked. I allowed him to go on with his work and limited him to three pints of milk a day—i.e., 934 grains of proteid, which would require an excretion of about 300 grains of urea. (He was actually passing 312 grains.) He slowly increased this to four pints and has also increased his output of mental effort. For some years now he has been working steadily and successfully, in a position of much responsibility, on a mixed diet which allows one small meat meal daily. He is in stronger health than he was at first, suffering less from colds and less fatigued with his work. I believe his present analysis will enable him to continue in good health indefinitely so long as he leads a quiet steady life on a modified spare diet.

A fifth case, M. B. (Table IV.), I have placed amongst the healthy ones, as I consider his kidneys are functionally sound, though no doubt anatomically they must still give evidence of damage done by the old nephritis. For a man of his age his nitrogenous excretion is sufficient and he has not to pass an excessive amount of urine to maintain it. He is remarkably keen and energetic in his business and life generally and I have difficulty in getting him to remember that he is 71. The persistent haze of albumin bothers his lay mind and it takes all my persuasion to make him believe that he need not consider it so long as his kidneys are in thorough good working condition. At the same time his nephritis was a severe one and I do not suppose his kidneys have as much rope to spare as they would have had had they not so suffered.

To sum up I would put 1012, 50, 1·4, 310 as the lowest average analysis which would enable a man to go about doing a moderate amount of work in the world; and 1011, 45, 1·2, 238 as the lowest which would enable him to get up and do some light work which did not necessitate regular attendance, for he would often be invalided; while an analysis as low as 1010, 40, 1·0, 175, would necessarily confine him to bed; or, if he got up, his manufacture of waste material would be greater than his removal of it, so that often severe breakdowns would occur during which his nitrogenous intake would have to be of the smallest to enable equilibrium to be once more established. This is for men. Women would have a smaller excretion, but this decrease is shown not in the strength of the solution but rather in its amount. For the women with healthy kidneys had an analysis of 1019, 28, 1·8, and the men of 1019, 39, 2·1. The female kidney does work of equal quality but smaller quantity. There is nothing more striking than this maintenance of quality by the healthy organ; if there is less urea to be excreted, then the quantity of urine is lessened, not the strength of the solution. Hence the urea percentage and the specific gravity are the two important factors which indicate the degree of kidney damage. But a patient with damaged kidneys promptly calls upon the heart for aid and his strength depends upon the functioning power of both these organs and not upon the kidneys alone. The increased cardiac action, by increasing the flow of blood through the kidneys, will enable these to secrete a greater quantity in any given time and so make up for the lessened quality.

I desire heartily to thank my three house physicians, Dr. H. W. Crowe, Mr. H. Bracey, and Mr. Stocks, for the labour they have so willingly given in making the numerous analyses. The cases were taken as they came without any direction from me, save that I said I wished both healthy and diseased kidneys to be tested.

[Since I gave this address my attention has been drawn to a paper by Sir F. R. Cruise of Dublin on Ureametry,[3] wherein occurs this paragraph: "Every cautious physician examines the urine for albumin in all serious cases of ill-health, and not infrequently comforts himself and his patient when he finds that this substance is absent. I doubt that I am in error in adding, on the other hand, that very few practitioners attempt the quantitative estimation of urea in such cases. Nevertheless, the importance of ureametry is far greater than testing for albumin, because, while the latter is often present and signifies little and may be absent in very grave cases, the quantity of urea is always a matter of serious, and often of vital, consequence."

[3] THE LANCET, March 22nd, 1890, p. 643.

THE TREATMENT OF ACUTE INFLAMMATORY CONDITIONS BY BIER'S HYPERÆMIA.

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IT is somewhat remarkable that the application of Bier's well-known "congestive" principles to the most acute conditions of inflammation has attracted so little notice in this country, notwithstanding that they are by now no longer new and that hyperæmia has been adopted for so many years for chronic tuberculosis of joints. And this is all the more notable as on the continent of Europe his treatment has reached such an important place in therapeutics. The reason for this neglect may be attributed in some measure to the absence of an English translation of his book on "Hyperæmia as a Means of Treatment."[1] This want has only recently been supplied by a short manual[2] written by W. Meyer and Schmieden (one of Professor Bier's assistants), in which the subject is now adequately dealt with. But even in this book and in the comparatively few references to Bier's hyperæmia in the English medical press details of cases have been scanty, while the total number treated in this country apparently has been small. Meanwhile, Bier's methods are being widely used in Germany, France, and other countries, and at the German Surgical Congress of 1906 hyperæmia was the subject of a discussion in which no less than 25 surgeons took part and recorded the favourable results of over 3000 cases recently treated.

During a visit to Bonn in the summer of 1904 I had the privilege of being shown a number of the patients undergoing this treatment, including cases of septic arthritis, osteomyelitis, teno-synovitis, and other similar ailments, and the results were so striking as to be subversive of all preconceived ideas of the value of such measures. Without unnecessary details the general lines of the treatment are as follows. As soon as an acute inflammatory condition has declared itself in a limb or other accessible place passive congestion is induced either by means of an elastic bandage or by a large cupping-glass which is partially exhausted with an air-pump. In the most acute cases the congestion is kept up for a long time—22 hours out of the 24—so that the tissues become bathed and infiltrated with the juices of the blood which exert an antagonistic action on the offending germs, and also afford abundant nourishment and so avert necrosis. In the intervals the limb is elevated in order to allow the œdematous swelling to subside and a fresh flow of blood to wash through it and to carry off the effete and poisonous material pent up, after which the hyperæmia is again induced. As the inflammation subsides the periods of congestion are shortened. The important requirements in the application of the band are to adjust it so that the venous outflow is retarded but not stopped, that the arterial circulation is obstructed as little as possible as evidenced by the warmth and colour of the limb, and otherwise that the tissues are not injured nor the patient put to any pain. For the upper limb a bandage of pure rubber is used similar to "Martin's bandage," but considerably thinner and weaker and incidentally much cheaper. It is applied in three or four turns round the arm well above the seat of inflammation. To prevent irritation of the skin the site of the bandage should be altered a little each

[1] Hyperämie als Heilmittel, Leipzig, F. C. W. Vogel, 1907.
[2] Bier: Hyperæmic Treatment, W. B. Saunders Co., 1908.

time and if there is any irritability a thin layer of gauze is spread beneath it. As an ordinary band cannot be applied for inflammation at the shoulder, a piece of rather soft rubber tubing is fastened loosely round it to form a ring, the ends being fixed with a clamp, and this ring is drawn close by means of straps across the chest. Owing to the narrow area of pressure such a band must be frequently loosened to prevent chafing. Our attempts to use a similar ring for the hip were disappointing. In the lower limb the stout "Martin's bandage" or even strong elastic woven bands are requisite; the disadvantages of the thicker fabrics, however, are the unyielding hardness of a series of overlapping turns which is apt to cause pain. Bier in his book enters fully into the need for obtaining the correct degree of hyperæmia, but a little practice is required before the bandages can be applied always at the proper tension, and this is more particularly so in the lower limb. As a rule, however, the proper tightness can soon be found, and hyperæmia induced without difficulty.

Since learning the details of Bier's methods I have employed them from time to time as occasion arose; but during the last year in particular, being in charge of two wards containing 40 beds devoted to septic conditions, I have had abundant opportunity of testing them on a more extensive scale and under continuous personal observation. For a variety of reasons hyperæmia has not been employed in some cases, such, for instance, as osteomyelitis with such acute septicæmia and destruction of the bone that amputation promptly performed seemed the only way of saving life, and also in other cases where the opening of an abscess or the removal otherwise of a suppurating focus has been followed by such rapid improvement that hyperæmia was never called for. In one or two cases congestion was applied for a day or so, but had to be abandoned either on account of undue pain when the band was adjusted to the tension necessary to produce the proper amount of congestion or because of the difficulty of applying it at all, as, for instance, close to the hip. These cases are not noted amongst the rest of the unsuccessful ones. The following cases are presented quite without selection, as they give a fair example of what successes and failures are likely to be met with in hospital work. It is to be expected, however, that cases seen in general practice will give a much greater proportion of successes, since the treatment can be commenced so much earlier.

Cellulitis of the Upper Limb.

The most successful ones treated by bandaging have been those of cellulitis of the upper limb, where the band can be most easily and accurately adjusted. Here the beneficial effects have been quite distinct, especially in inflammations below the level of the elbow. Few instances have been met with of sudden quiescence of the disease, with rapid fall of temperature, relief of pain, and immediate check to the spread of inflammation, such as is described by Bier and others, the main reason being that the cases have not come under our observation till too late for these striking changes to be observed. But, as a rule, the character of the inflammation has been altered in the course of a very few days, the disease has been limited to the original site in a degree much more defined than by any other mode of treatment, fewer and smaller incisions have been required, and painful packing is avoided. Moreover, the ultimate functional results have been much more satisfactory as regards loss of substance and immobility of joints and tendons than could be otherwise hoped for. Bier points out that tendons, which admittedly are poorly supplied with blood-vessels, are very liable to necrosis in the course of inflammatory conditions, both by reason of the disease and of the extensive exposure and packing with antiseptic gauze; and he claims that by his method they are preserved to an extent which other treatment is unable to reach, and that this is due mainly to the presence in such abundance of the nutrient fluids effused around them. This claim is fully substantiated in our cases, and, indeed, forms one of the chief grounds for recommending the treatment. The actual duration of the ailments has not been notably diminished in all of these cases, though several have certainly been aborted to some extent. In very few instances have the patients complained of actual pain when the band is properly applied, the commonest cause then being rolling up of its lower edge to form a hard rim. A passing discomfort at the first application of the band is often noted, but many of the patients have slept through the night wearing it without complaint. Only twice has there been irritation of the skin and this was avoided afterwards by inserting a layer of gauze between the band and the bare skin and carefully disinfecting and drying the surfaces each time. Only once has an erysipelatous condition been produced in a limb amongst the cases of streptococcic infection, though this is described as occurring commonly from time to time. In this case (No. 15) the redness spread up the arm to just above the elbow and the œdematous swelling increased greatly in the hand, where a large bulla appeared on the surface. The temperature, however, continued to fall, and the patient complained of no pain. The following day an abscess was opened and the limb eventually healed well.

In general, the discharge becomes at first more profuse and more serous in consistence; later, when the band is intermitted for longer intervals, it tends to dry up into a thicker and more viscid pus, and the exposed parts become more quickly covered with granulation tissue than in other circumstances. In several cases admitted to hospital some time after injury, and not treated by hyperæmia, the improvement towards recovery has been very rapid and striking on the adoption of this treatment.

Briefly, 20 cases of cellulitis of the hand and arm have been treated, and all but four have shown good results, the others reacting only fairly well. This, however, implies that all have done distinctly better than if treated by more extensive laying open of the parts or by other means, and that the functional results have in some cases been surprisingly good.

CASE 1.—A man, aged 27 years, was admitted in August, 1907, with a suppurating wound of the right hand, resulting from an injury with a piece of steel one month before. Several incisions had been made. On admission there was cellulitis, continued discharge of pus, and stiffness. Bier's band was applied at first for 22 hours and gradually reduced in time. Dismissed with hand and arm healed, but still some stiffness, 10 days from admission.

CASE 2.—A youth, aged 17 years, was admitted in August, 1907, with suppuration of the right thumb and wrist resulting from a deep cut four days before. There was fever and intense throbbing pain. Incisions were made and moist dressings were applied with considerable relief for a time. But as pus continued to discharge Bier's band was applied daily for 10 hours at a time. The result was fairly satisfactory, as the inflammation was confined to the hand, though it increased in intensity from time to time in spite of all that was done. The discharge gradually dried up, and the boy was dismissed almost healed to a home in the country.

CASE 3.—A man, aged 43 years, was admitted in November, 1907, with lacerated wound of the middle finger received five days before. There was cellulitis of the forearm, a sloughing wound of the palm, suppurative tenosynovitis with sloughing of the flexor tendons and fever. A band was applied for 20 hours with good results on the symptoms, general and local. The patient was dismissed for outdoor treatment, with the hand greatly improved, in six days.

CASE 4.—A female, aged 20 years, was admitted in November, 1907, with cellulitis round the base of the third finger and on the dorsum of the hand of three days' duration. No focus of infection was visible. After an incision was made a band was applied for 16 hours daily. The inflammation, which tended at first to spread up the forearm, became localised at the original site. The joint became affected with synovitis but recovered without operation. The general result was very good.

CASE 5.—A youth, aged 19 years, was admitted in November, 1907, with cellulitis of the hand and arm, sloughing of the flexors of the index and middle fingers, and gangrene of the tips of the same, resulting from an injury received a month before, the wound having become septic. A band was applied for 20 hours. The result was satisfactory healing with comparatively little stiffness.

CASE 6.—A woman, aged 50 years, was admitted in November, 1907, with suppurating wounds of the middle finger, tenosynovitis and sloughing of its flexor tendon, and cellulitis of the dorsum of the hand and arm, resulting from injuries received 12 days before. There was slight fever. All dead tissue was removed and a band was applied for 12 hours. Rapid healing resulted, but there was considerable loss of power from defect of the tendons. (See also Case 47.)

CASE 7.—A man, aged 21 years, was admitted in November, 1907, with suppurating wounds, compound fracture of the third and fourth metacarpal bones, and cellulitis of the hand, of three days' duration. There was slight fever. A band was applied for 22 hours. All sloughs were removed. Rapid healing ensued, with some defect, owing to the necrosis of part of the bones exposed.

CASE 8.—A man, aged 31 years, was admitted in December, 1907, with suppurating wounds of three fingers, cellulitis of hand and arm, tenosynovitis of some of the flexors and extensors, and secondary hæmorrhage from the second finger. Bleeding was stopped and the second day Bier's band was applied for ten hours at a time. Progress was irregular, several collections of pus having to be let out by incision. The band caused some pain and had to be intermitted from time to time. Ultimately the hand and arm recovered well, with wonderfully little stiffness, and practically no destruction of tendons. Result considered fair. (See also Case 48; the same patient.)

CASE 9.—A male, aged 52 years, was admitted in January, 1908, with secondary hæmorrhage from a suppurating wound of the hand, resulting from the penetration of a piece of wood 13 days before, still found imbedded in the depths of the wound. There was cellulitis of the forearm and slight fever. Splinters of wood were removed and bleeding vessels ligated. A band was applied for ten hours daily. Wound cleaned up well.

CASE 10.—A female, aged 30 years, attended in December, 1907, for inflammation of the thumb starting from a prick at the tip 24 hours before. Incision was made and a band was applied for six hours or so daily. This produced pain after a few hours and had then to be removed. The inflammation, which had spread up the tendon sheaths very rapidly, became localised by the third day to the thumb. Two further incisions were needed, but the result was very satisfactory—good healing and complete movements, with no stiffness.

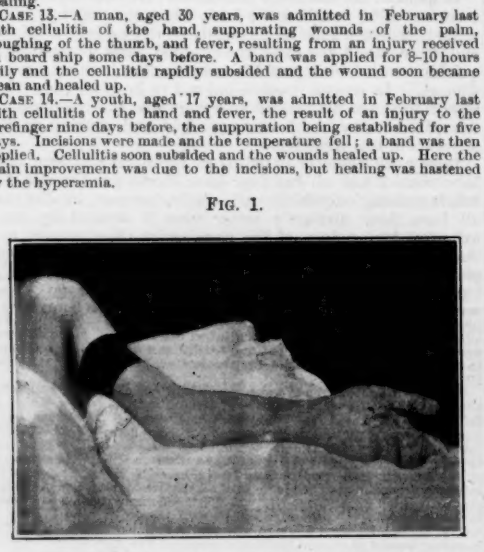
CASE 11.—A man, aged 28 years, attended in February, 1908, for cellulitis of dorsum of the hand, starting in a pustule of the skin there two days before. Incisions were made and band was applied for 6–12 hours according to the amount of pain produced, which in this case also was considerable. Suppuration was localised but healing was slow. The ultimate result was good as no inflammation spread up the arm.

CASE 12.—A male, aged 20 years, was admitted in November, 1907, with cellulitis of the hand and arm, suppuration of the metacarpo-phalangeal joint, and tenosynovitis of the second finger, resulting from a wound of the dorsum of the hand received ten days before. A band was applied daily for 16 hours, with good results and satisfactory healing.

CASE 13.—A man, aged 30 years, was admitted in February last with cellulitis of the hand, suppurating wounds of the palm, sloughing of the thumb, and fever, resulting from an injury received on board ship some days before. A band was applied for 8–10 hours daily and the cellulitis rapidly subsided and the wound soon became clean and healed up.

CASE 14.—A youth, aged 17 years, was admitted in February last with cellulitis of the hand and fever, the result of an injury to the forefinger nine days before, the suppuration being established for five days. Incisions were made and the temperature fell; a band was then applied. Cellulitis soon subsided and the wounds healed up. Here the main improvement was due to the incisions, but healing was hastened by the hyperæmia.

FIG. 1.



Band applied on arm for cellulitis of hand (Case 14).

CASE 15.—A man, aged 27 years, was admitted in March last with cellulitis of the hand of a week's duration, arising from an abrasion on the knuckles with a hammer six weeks before. Incisions had been made, but the hand continued severely inflamed. A band was applied for seven hours a day. Inflammation rapidly subsided, and healing was satisfactory.

CASE 16.—A boy, aged 16 years, was admitted in March last with cellulitis of the hand and inflammation of the extensor tendons of the forefinger resulting from an injury by a hammer a week before. A band was applied for seven hours a day. Inflammation subsided, the wound healed, and the arm recovered without sloughing of the tendons.

CASE 17.—A man, aged 31 years, was admitted in March last with cellulitis of the arm near the elbow of nine days' duration, probably starting from inflammation in the epitrochlear glands infected from a suppurating nail-bed. Incisions were made without exposing any pus. A band was applied daily for seven hours. Swelling and pain quickly subsided, and the joint, which had been almost immoveable from the onset of the inflammation, became rapidly normal in function.

CASE 18.—A man, aged 60 years, was admitted in March last with cellulitis of the hand, gangrene of the forefinger, and septic arthritis of the metatarsal phalangeal joint of 14 days' duration resulting from an abrasion on the knuckles against the edge of an iron plate. A band was applied daily for seven hours and the finger was amputated. The application of the band always caused pain but the effect on the healing process was pronounced.

CASE 19.—A youth, aged 18 years, was admitted in April last with cellulitis of the hand of two days' duration resulting from an injury by a falling weight received a week before. Two incisions were made in the hand and next day a band was applied for a few hours. The relief of pain was so great and the fall of temperature so pronounced that it was continued for about 12 hours daily. The hand soon began to show rapid healing.

CASE 20.—A man, aged 28 years, was admitted in April last with acute cellulitis round the elbow of a week's duration resulting from an injury occurring 14 days before that. A free incision was made and a band was applied next morning for 12 hours and continued for that time daily. This had the effect of rapidly subduing the inflammation and dispersing the swelling.

Cellulitis of the Lower Limb.

The cases of cellulitis in the lower limb have shown much less reaction; indeed, the effect of congestion on most of them has been practically *nil*. This may be attributed to the more chronic character of the ailments, which were not so readily affected by hyperæmia. Another cause was found in the difficulty of applying bands, even of the various strengths and textures, on thin subjects, owing to the pain caused by pressure on bony edges in the leg, or to the shape of the muscles of the thigh from their standing out so prominently that the main line of the venous trunks lying in the sulcus was often little affected at moderate pressure, and this was apt to be altered by even slight movements of the limbs. In well-nourished individuals the difficulty has been much less. A number of cases of cellulitis around about the knee occurring at this time showed such rapid healing after free drainage that congestion was never required; and perhaps if used it might have given rise to an unduly favourable opinion of its value.

CASE 21.—A man, aged 24 years, was admitted in October, 1907, with cellulitis of the left foot and ankle, which had been bruised 14 days before, and with some fever. Incisions were made, and some small sloughs removed. A band was applied for 10 hours daily producing moderate duskiness and swelling; but the effect was very slight. The foot healed slowly, apparently in the ordinary way, and the patient was dismissed well in three weeks.

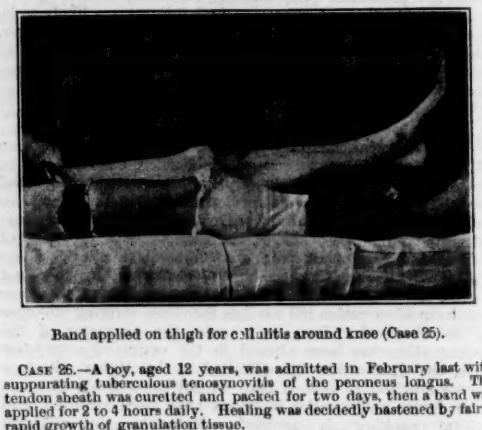
CASE 22.—A young male Russian, aged about 25 years, was admitted in October, 1907, with cellulitis around the knee resulting from a wound on board ship at sea some days before. A band was applied for 10 hours daily, with little or no effect on the wound, which healed in the ordinary way, in a little over a fortnight.

CASE 23.—A man, aged 40 years, was admitted in November, 1907, with a superficial wound on the dorsum of the foot, spreading subcutaneously and refusing to heal. A band was applied for 18 to 20 hours daily without effect on its progress. The wound ultimately healed well, after an unusually long stay in bed for such a small matter.

CASE 24.—A man, aged 58 years, was admitted in December, 1907, with septic wound of the great toe, arthritis of the joint, tenosynovitis of the long flexor, and cellulitis of the foot, resulting from an injury three weeks before. The toe was amputated and the stump drained. A band was applied in several courses, always without effect. Considerable pain was caused whenever the leg showed the proper amount of congestion. The effect was practically *nil*, either on local conditions or on fever when present.

CASE 25.—A man, aged 38 years, was admitted in January last with subcutaneous cellulitis at the side of the knee of a week's duration, arising from some unrecognised cause. Incisions were made and drainage tubes inserted. The band was applied for 8 to 2 hours daily, but produced very little healing effect. The patient was dismissed well in 30 days.

FIG. 2.



Band applied on thigh for cellulitis around knee (Case 25).

CASE 26.—A boy, aged 12 years, was admitted in February last with suppurating tuberculous tenosynovitis of the peroneus longus. The tendon sheath was curetted and packed for two days, then a band was applied for 2 to 4 hours daily. Healing was decidedly hastened by fairly rapid growth of granulation tissue.

CASE 27.—A boy, aged 13 years, admitted in February last with suppuration and œdema of the foot resulting from penetration of a piece of glass four weeks before. A band was applied for a few hours daily, with effect of causing more rapid healing.

Arthritis.

The few cases of arthritis treated by hyperæmia have been most disappointing. With the exception of Case 31, which subsided under aspiration and bandaging for a day or two, and Case 4, none of them showed any reaction to speak of. One tuberculous elbow cleared up a little but never became really well and eventually required excision. Many other cases of a similar kind—namely, tuberculous joints with septic sinuses—have been treated during the same time, but all were subjected to excision or extensive curetting without any exposure to hyperæmia; and the results have been quite satisfactory. A series of interesting cases of cryptogenetic pyogenic arthritis has also occurred during the winter, but the application of a band has not been possible, except for a day or so at a time, on account of the

character of the inflammation which shifted rapidly from joint to joint as in acute rheumatism. These cases are not recorded here, as they do not afford any true grounds for basing an opinion on this mode of treatment.

CASE 28.—A male, aged 30 years, was admitted in August, 1907, with a septic sinus in an old excised tuberculous elbow. A band was applied for two hours daily, but had little apparent effect either on the tuberculous or the septic condition. The wound healed after thorough curetting.

CASE 29.—A girl, again seven years, was admitted in September, 1907, with septic sinuses in a tuberculous elbow. A band was applied daily for 1 to 2 hours. The elbow improved to some extent, so that an excision could be carried out with good results.

CASE 30.—A man, aged 46 years, was admitted in October, 1907, with septic arthritis of the knee-joint of 10 days' duration, following a penetrating wound from an adze, which began to suppurate profusely in three days. There was fever, delirium, and great prostration. The knee was opened widely and a band was applied for 22 hours for some days. But little effect could be detected on local or general conditions. Ultimately the leg was amputated and recovery was satisfactory.

CASE 31.—A boy, aged 12 years, was admitted in December, 1907, with synovitis of the knee following immediately on pneumonia. The joint was aspirated and gave culture of streptococcus and pneumococcus. A band was applied for a few hours. It possibly helped absorption but the effect, if any, was not striking. (See also Case 37, same patient.)

CASE 32.—A female, aged 27 years, was admitted in October, 1907, with acute synovitis of the right ankle of five weeks' duration; at first slight but culminating within the previous few days in a condition of cellulitis of the foot and arthritis of the ankle-joint. No focus of infection could be detected. The parts were freely incised and drained and a pure culture of streptococcus was obtained. A band was applied at first for 12 to 14 hours but later for a shorter time on account of discomfort. The effect on the condition was slight, as but little hyperæmia could be induced without giving rise to so much pain. Eventually it was given up and the ankle gradually healed up, with considerable stiffness of the joint.

CASE 33.—A man, aged 72 years, was admitted in February last with a septic sinus of the ankle remaining from an old compound fracture of the internal malleolus. The cavity was curetted and cauterised with carbolic acid and alcohol and drained. Within a day or two the temperature rose and the foot swelled (streptococci being obtained from pus). A band was applied for several hours, inducing hyperæmia, and the local condition improved considerably, but the patient at that time was developing pneumonia, from which he died.

Acute Osteitis.

The cases of acute osteomyelitis treated by this means have for the most part been admitted too late for abortion of the disease, and many were already suffering profoundly from septicæmia at the time. In one case, however (No. 38), where a second limb became affected, the prompt application of a band had a very marked effect in confining the disease to the immediate seat of suppuration in the head of the tibia, where a small localised abscess was found and evacuated. And in a case of periostitis of the radius (No. 41) of short duration the disease was apparently completely aborted. In the other cases the patients were already so ill that practically no effect was produced either on the local conditions or on the general symptoms.

Notwithstanding this disappointing experience, the benefits conferred on the cases mentioned were probably due to the treatment; and that is borne out so markedly in other published cases, that an appeal must be made to general practitioners who see cases of osteomyelitis in their earliest stages to lose no opportunity of attempting to save life and limb by this means, especially as the expectant treatment during the period when the character of the disease is still often in doubt usually consists of poulticing, which has no effect in preventing any form of suppuration, and at the most can only relieve pain and help the easier escape of pus when once formed. The effects of osteomyelitis are often so cataclysmal and so disastrous that no means to avert them should be neglected. It is obvious that the use of the bandage must be prompt and thorough; and at the first sign of localised suppuration with redness and œdema the pus must be let out by an incision in accordance with the general rules of surgery. Notwithstanding Bier's claim that acute suppuration can by this method be modified to the condition of a "cold abscess"—i.e., where the microbes are dead—the latter precaution should not be omitted. In this way many a case of osteomyelitis might be aborted. The treatment is so simple and easily carried out that patients and their friends have no reason for objection, such as is so often raised by the question of a more extensive operation to open up the bone.[3]

CASE 34.—A boy, aged 13 years, was admitted in August, 1907, with acute osteomyelitis of the tibia of six days' duration. There was septicæmia, with fever (temperature 103° F.) and rigors, redness, swelling, and œdema of the limb. The soft tissues were incised and the bone was freely opened. A band was applied without any effect on the temperature or general illness. Pyæmia declared itself, with continued fever and secondary abscess in various organs. Death occurred on the twenty-eighth day of illness.

CASE 35.—A boy, aged 7 years, was admitted in November, 1907, with acute osteomyelitis of the tibia of five days' duration. There was septicæmia with fever, rigors, and delirium, and redness, swelling, and œdema of the limb. Free incisions were made in the soft tissues and the bone was widely opened. A band was applied for 20 hours, giving rise to considerable pain, but not in any way apparently affecting the temperature, or general or local conditions. Secondary suppuration took place in both parotid glands, the opposite thigh, and one of the fingers. Death occurred on the nineteenth day of the illness.

CASE 36.—A boy, aged 6 years, was admitted in October, 1907, with periostitis of the front of the tibia of a month's duration. Pus was evacuated from below the periosteum, but the bone was trephined on several occasions without discovering any involvement there. The wound was very long in healing and there was great thickening of the periosteum. Various remedies were used. Bier's band was applied in several courses without improving the condition at all. The wound ultimately healed in more than five months. This was discovered to be tuberculous in origin from the occurrence some months later of tuberculous swelling of the inguinal glands.

CASE 37.—A boy, aged 12 years, was admitted in December, 1907, with synovitis of the knee, and afterwards periostitis just above it confined to the inner side of the bone, pneumonic in origin. A band was applied on both occasions, but with only doubtful effects, though the periostitic abscess rapidly dried up, being apparently of mild character. (See also Case 31.)

CASE 38.—A boy, aged 13 years, was admitted in February last with acute osteomyelitis of the left tibia of six days' duration. The leg was red and swollen, and there was a large burn with a septic slough over the knee where a hot poultice had been put. On incision the bone was seen denuded and lying in a pool of pus. The middle third of the bone was dead and filled with pus, and was therefore resected, while the ends which seemed viable were left. Fever dropped from 104° to 102° F. and the symptoms were relieved for two days. But the temperature again rose, with pain, redness, and swelling at the head of the opposite tibia, which was immediately trephined and found to have a localised abscess. A band was applied to this leg, giving good hyperæmia and apparently producing reaction in that part. This leg continued to improve and the inflammation showed but little tendency to spread. On account of the pain, however, the band was left off after some days. Fever still continued high though the local conditions kept fairly satisfactory, and an abscess developed on the occipital region, followed later by another large one on the buttock. These were opened and relief was obtained. Meanwhile the legs both improved and the ultimate result was good.

CASE 39.—A boy, aged 16 years, was admitted in September, 1907, with acute osteomyelitis of the humerus of five days' duration. There was high fever and the shoulder was red and swollen, but the joint was freely moveable without causing pain. An abscess was evacuated, and on trephining the head of the bone pus exuded in considerable amount, giving a growth of staphylococcus aureus on culture. A band was applied round the shoulder for two hours at a time, followed by an hour's interval, for about 12 hours in all, but no benefit was noticed and it caused pain. The patient died from pyæmia on the eighth day of illness.

CASE 40.—A woman, aged 35 years, was admitted in February last with periostitis of the lower end of the humerus of 30 days' duration. An incision was made and a small trephine opening was made into the bone without discovering any abscess. A band was applied at first for seven hours, but this caused such pain that the time was diminished, and finally the band was left off. The effect was practically *nil* and the disease eventually followed the ordinary course, with considerable necrosis of the bone. A later attempt to use the band was also unsatisfactory.

CASE 41.—A youth, aged 17 years, was admitted in March last with acute swelling round the head of the radius of five days' duration, no cause being ascertained. The joint was not involved. An incision was made down to the bone which was also trephined, but no pus was seen and no growth was obtained by culture of the fluids. A band was applied for seven hours daily. Swelling, pain, &c., soon subsided and recovery was rapid, with good functional results.

CASE 42.—A girl, aged 18 years, was admitted in March last with acute cellulitis of the upper part of the leg around and below the knee of eight days' duration, resulting from the penetration of a needle 11 days before admission. An extensive loculated abscess containing several pints of pus was evacuated and the bone, though not yet necrosed, was bare. A band was applied daily for several hours. But in spite of fair hyperæmia being induced the process continued, and a considerable depth of the bone became necrosed from the surface downwards and the knee-joint became involved. Eventually the leg was amputated and the patient after a tedious illness recovered.

Chronic Osteitis.

With subacute and chronic osteomyelitis reaction has occurred to some extent in the way of stimulation of granulation formation and the extrusion of small sequestra. The process is of course slow, and in some instances the effect of hyperæmia has been for that reason practically negligible. Quite as good results have been obtained by letting the patient sit up from time to time with the leg dependent, so as to produce a certain amount of fulness such as is nearly always noticed in an injured limb when the patient first begins to walk after being confined to bed for a long time.

CASE 43.—A man, aged 49 years, was admitted in September, 1907, with partial necrosis of the femur resulting from a compound fracture of old standing. The necrotic tissue was curetted but healing was slow. A band was applied for a few hours daily. It produced little œdema or duskiness but much freer flow from the sinus. The wound closed up at last, apparently little influenced by the band.

[3] Lately a case of osteomyelitis of the femur of a week's duration was sent to me by a doctor in the country who had so aborted the disease by Bier's hyperæmia that the fever had subsided and the suppuration and necrosis had been localised to a small area.

CASE 44.—A boy, aged 13 years, was admitted in January, 1908, with osteomyelitis of the tibia of six weeks' duration. The bone had been opened before admission and the disease was in a subacute stage. A band was applied for several hours daily. The necrosis seemed to localise itself perhaps more quickly, and granulations soon began to fill up the cavity, and the band therefore had probably some beneficial effect.

CASE 45.—A boy, aged 12 years, was admitted in September, 1907, with osteomyelitis of the tibia in the healing stage after free operations. A band was applied daily for several hours over many days, with no perceptible effect in aiding healing, which took place slowly in the ordinary course of events.

CASE 46.—A boy, aged ten years, was admitted in February last with osteomyelitis of the tibia in the healing stage, having been operated on several weeks before admission. A band was applied daily for two hours for a period of several weeks. The nutrition was much improved and healing was rapid.

Cupping Glasses.

The other method of producing passive hyperæmia is by cupping glasses of various sizes and shapes as developed by Bier and Klapp for different uses. The action is twofold: first, they produce local congestion by drawing the tissues into the partial vacuum created and causing them to expand; and secondly, they remove the discharge by the suction, a very valuable help in draining deep wounds and sinuses. The former of these actions is comparable to that of the bandage, and a great advantage is derived from the applicability of cups to many parts of the body where a bandage cannot be used and where this treatment could not otherwise be made available.

To help the cups to adhere the skin is shaved of all stiff hairs and smeared thickly with vaseline which further prevents the surface from being infected with the discharge from the incision or sinus if there is one. Where this anointing was inadvertently omitted in two cases a crop of pustules appeared, but the repeated action of the cupping glasses seemed to prevent them from developing to any extent. The edges, of course, must be examined to insure that they are not chipped. The cups are exhausted only enough to make them adhere firmly without causing pain, any further suction being injurious rather than beneficial. In one case a

FIG. 3.

Large cup applied to carbuncle of the back (Case 49).

patient complained that the treatment began to pain her and it was found that owing to a change in the staff the cup had been applied by another nurse who was using an unnecessary amount of force with the pump. It is essential then that each case, if not treated entirely by the medical man himself, should be constantly supervised, and that the person intrusted with the carrying out of the method should be instructed and shown how to do so. In any case the medical attendant should apply the cup himself the first time or two in order to test by means of the local reaction and also the feelings of the patient the degree of vacuum required.

Of the cases treated by cups with the end in view only of producing hyperæmia (Nos. 47 to 54) the first two were arms introduced into large cylindrical cups fitted with rubber collars for making an air-tight junction. Here the effect was nearly as good as that of the band and gave rise to less discomfort which was the main reason for making the change. Three commencing whitlows of the finger were treated, all occurring in nurses on duty in the "septic" wards, and were aborted by this means, the patients probably being thus saved from painful and disabling inflammation of the forearms. The apparatus was similar to that used in the preceding ones (Cases 47 and 48) but of course on a small scale. For boils and carbuncles cupping glasses have been very useful both in aborting the smaller ones and also in clearing up those of longer duration.

CASE 47.—A woman, aged 50 years, was admitted in November, 1907 with cellulitis of the forearm, arising from a septic wound of the finger. A band was applied, but as it produced pain a large suction apparatus was substituted, without, however, acting quite as satisfactorily as the band. (See also Case 6, same patient.)

CASE 48.—A man, aged 31 years, was admitted in December, 1907, with cellulitis of the hand and arm. A band was applied but was changed for a large suction apparatus. This acted fairly well but was less convenient in use. (Same patient as Case 8.)

CASE 49.—A woman, aged 54 years, was admitted in February last with a large sloughing carbuncle on the back just below the level of the scapula. After a thorough curetting a large cup was applied daily for half an hour in the aggregate. Healing was rapid. A second carbuncle made its appearance a few inches from the first. A cup was immediately applied and repeated daily for half an hour and aborted the carbuncle in about three days.

FIG. 4.

Suction apparatus for the finger (Case 53).

CASE 50.—A nurse, aged 28 years, attended in December, 1907, for whitlow of the thumb of two days' duration. The inflammation had not reached a very acute stage. A finger-suction apparatus was applied daily, and the whitlow aborted in a few days.

CASE 51.—A nurse, aged 26 years, attended in December, 1907, for whitlow of the finger of a couple of days' duration. Finger-suction apparatus was applied daily for half an hour at a time and the inflammation was checked in a day or two.

CASE 52.—A woman, aged 30 years, attended in December, 1907, for a boil on the chin surrounded by dusky and œdematous area. Small cups were applied for half an hour morning and evening and in less than a week this disappeared. The same appearing elsewhere within a fortnight, cups were again applied with equally good results.

CASE 53.—A nurse, aged 24 years, attended in March last for a pustule on the forefinger of a day's duration. Finger-suction apparatus was applied twice daily for an aggregate of 20 minutes at a sitting. Suppuration was aborted and the finger healed in three days.

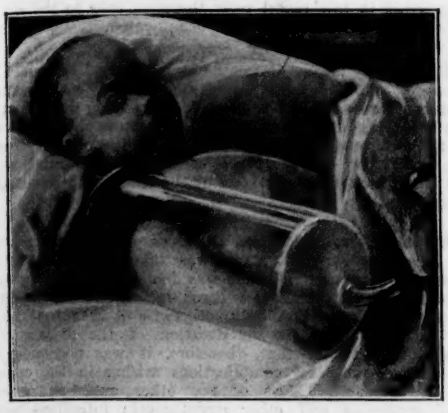
CASE 54.—A girl, aged two years, was admitted in March last with a suppurating sinus of a tuberculous elbow, the ends of the bones being exposed and necrotic. The sinus was well curetted and the bones were trimmed. The parents insisted on removing the child, but brought her back in a week in a lamentable state with profuse suppuration from the wound. The arm was placed in a suction apparatus for from 20 to 40 minutes daily. The discharge diminished and healing was greatly hastened.

Sinuses and Abscesses.

The second object was attained in Cases 55 to 66 with remarkable uniformity. The cases of empyema dried up soon, though it is doubtful if any real influence was produced on the expansion of the lungs. But there is no doubt about the efficient evacuation of abscesses and sinuses, especially those occurring in situations which do not lend themselves to drainage by gravity. It is quite possible that in one or two situations cupping was not called for, where the pressure of the surrounding structures might have been enough to expel the discharge, but it gave an additional feeling of confidence when treating suppuration in very deep positions that pus would not lodge in pockets and give rise to secondary extensions. In these deep sinuses it is better to introduce a small tube in order to exert suction in the depths, otherwise the lips of the opening are apt to be sucked together in the cup to form a valve. When the discharge becomes scanty

the tube is removed and the sinus often closes with remarkable rapidity. In deep tuberculous sinuses the action has on the whole been good. The two spinal abscesses dried up considerably and one of them in which the purulent condition had reappeared resumed its more favourable state.

FIG. 5.



Suction apparatus for a child's arm (Case 54).

CASE 55.—A man, aged 30 years, was admitted in July, 1907, with an empyema which had been opened and drained for some time. As the lung was slow in expanding the sinus was curetted. Bier's cups were applied for from half an hour to one hour daily in two sittings. They had not much influence in expanding the lung, but the sinus dried up fairly quickly.

CASE 56.—A boy, aged 12 years, was admitted in November, 1907. (See also Cases 31 and 37, same patient.) Empyema followed after the arthritis and periostitis. A part of a rib was resected. Bier's cups were applied for from half an hour to one hour daily. The sinus closed up quickly but not appreciably sooner than without cupping.

FIG. 6.

Cup applied to abscess of the neck.

CASE 57.—A female infant, aged 13 months, was admitted in September, 1907, with suppurating glands on both sides of the neck of a week's duration. These were incised and cupping-glasses were applied morning and evening. The openings healed rapidly and the thickened gland tissue became markedly diminished.

CASE 58.—A man, aged 42 years, was admitted in October, 1907, with a very large gluteal abscess of 12 days' duration, containing about one and a half pints of pus and large sloughs. A large cup was applied daily for three-quarters of an hour in all. The abscess rapidly became clean and healed quickly.

CASE 59.—A woman, aged 52 years, was admitted in December, 1907, with a deep abscess at the side of the neck. Incisions were made and tubes inserted. Cupping glasses were applied daily and the abscess healed well and quickly.

CASE 60.—A man, aged 30 years, was admitted in January, 1907, with Ludwig's angina of seven days' duration. A deep abscess was opened in the neck, upper part of the mediastinum, and supraclavicular region. Tubes were inserted and cups were applied for half an hour twice daily. The abscess healed quickly but it is doubtful what effect cupping had on its progress.

CASE 61.—A boy, aged 16 years, was admitted in January last with osteomyelitis of the tibia of a week's duration and septicæmia, for which the leg was amputated. Two days later a large abscess was detected in the gluteal region of the same side but quite unconnected with the operation wound which healed by first intention. The abscess was incised and a cup was applied morning and evening to prevent the discharge from soiling the amputation dressings. The abscess healed quickly and well.

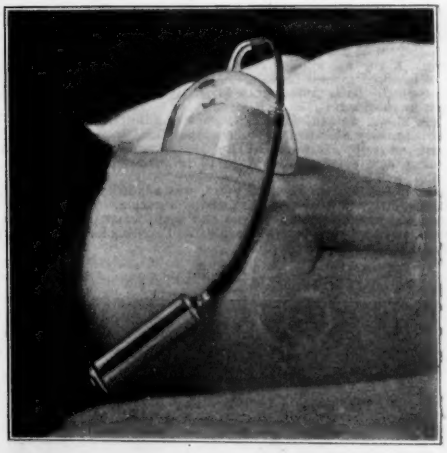
CASE 62.—A youth, aged 18 years, was admitted in January last with a large iliac abscess (along with others), probably tuberculous in origin, but then pyogenic. The abscess was incised in front and drained with tube. A cup was applied for half an hour daily to extract the discharge, and had the effect of healing it very quickly.

CASE 63.—A young woman, aged 19 years, was admitted in January last with a large abscess at the side of the neck. This was incised and drained. A cup was applied daily for half an hour, and the abscess healed well and quickly, though it is probable that the use of the cup was unnecessary.

CASE 64.—A girl, aged 14 years, was admitted in February last with a diffuse abscess in the supraclavicular region of the neck. Incisions were made and tubes inserted. Cups as large as available were applied twice daily and helped materially in evacuating pus from the depths and to some extent in healing by the local congestion.

CASE 65.—A man, aged 30 years, was admitted in February, 1908, with an ill-defined abscess over the clavicle of many days' duration, resulting probably from infection from an old-standing sinus of the axilla. An incision was made and a cup was applied daily. The patient left nearly well in six days.

FIG. 7.



Cup applied for gluteal abscess (Case 67).

CASE 66.—A man, aged 39 years, was admitted in February last with diffuse cellulitis of the deep planes of the neck (Ludwig's angina) with fever, the result of a septic wound of the chin received nine days before. Incisions were made with some relief of symptoms. But fulness and œdema continued in spite of free discharge of stinking fluid from the tissues at the side of the œsophagus, and the temperature remained high. Cups were applied daily to the various incisions; the effusion rapidly dried up, the thickening subsided, and the man recovered his health, and left hospital well but for a small sinus leading to the surface of the mandible.

CASE 67.—A young man, aged 20 years, was admitted in February last with a large gluteal abscess of one week's duration. Incision was made and a large cupping glass applied. The abscess dried up rapidly.

CASE 68.—A girl, aged 13 years, was admitted in January last with septic tuberculous sinuses originating in a caries of one of the dorsal vertebræ and the head of the adjacent rib. After repeated curettings a cupping glass was applied daily for 20 minutes with rapid improvement in the drying up of the discharge.

CASE 69.—A man, aged 29 years, was admitted in March with a subpectoral abscess pointing in the axilla of 14 days' duration. An incision was made and a cup was applied daily for 20 minutes, a large amount of pus was evacuated at the first two or three applications, and the abscess closed up quickly.

CASE 70.—A man, aged 40 years, was admitted in March, 1908, with an abscess of the parotid region of three months' duration but only recently acute enough to cause pain and profuse œdema. This was opened and a cup was applied daily for 20 minutes and helped to dry up the discharge quickly.

CASE 71.—A man, aged 23 years, was admitted in December, 1907, with a long septic sinus in the thigh leading to caries of one of the dorsal vertebræ of considerable duration. With irrigation of saline solution, weak antiseptics, and peroxide of hydrogen this dried up satisfactorily, but later, when it began to discharge again freely, and afterwards suddenly stopped with a rise of temperature, a long tube was inserted to dilate the sinus while a cup was applied to abstract the discharge. Under this treatment the condition again improved rapidly.

Mastitis.

But undoubtedly the most striking results have been obtained in inflammation and abscesses of the breast by means of large cupping glasses applied over the whole organ, and used with the double purpose of inducing hyperæmia and draining away discharge. Every case showed remarkable improvement in a short time; those in which abscesses had formed were relieved with quite small incisions, and those which had been lingering on for some time with continued discharge in spite of constant drainage rapidly took on a healing action with drying up of the discharge, while parenchymatous thickening of the organ soon became diminished. Such results have been repeatedly confirmed in other quarters, and many cases have been reported of commencing mastitis in which the disease has been aborted without the necessity for any incision and without the occurrence of suppuration with consequent crippling of the breast.

The treatment is quite simple, and the apparatus is not expensive, though of course breakages occur from time to time. The cup is applied morning and evening, for short periods of five minutes or so, with a few minutes' interval, until an aggregate time of half an hour is taken to the sitting. After a little experience the patient can usually give great help in adjusting the glass and should be able to use it at home without difficulty.

CASE 72.—A married woman, aged 28 years, was admitted in August, 1907, with mammary abscess. Small incisions had been made and tubes inserted. A large cupping glass was applied for half an hour to one hour daily. The discharge dried up rapidly, the breast shrunk in size, and the inflammation disappeared. The application was painless except at the first time.

CASE 73.—A woman, aged 22 years, was admitted in August, 1907, with abscess of the left breast. This was incised and a tube was inserted. A cup was applied daily. The right breast then suppurated and a localised abscess formed. A small incision was made and a cup was applied. Both breasts healed rapidly and inflammatory thickening soon subsided.

CASE 74.—A woman, aged 26 years, was admitted in October, 1907, with mammary abscesses of three weeks' duration. Both breasts were almost entirely disintegrated by sloughing. Cups were applied morning and evening for 15 to 20 minutes with very satisfactory results.

CASE 75.—A woman, aged 35 years, was admitted in October, 1907, with mammary abscess of three months' duration. The discharge continued and several small abscesses had again formed. The breast was incised, and cups were applied morning and evening for 15 minutes, with remarkably good results.

FIG. 8.

Large cup applied to breast (Case 78).

CASE 76.—A woman, aged 30 years, was admitted in December, 1907, with mammary abscess of six weeks' duration. There were tender and red fluctuant swellings and fever. Small incisions were made and cups were applied for a quarter of an hour thrice daily. The result was very good.

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The application of Bier's passive hyperæmia for the treatment of tuberculous disease, or for the resolution of chronic thickening and ankylosis of joints, is not here under consideration; and all examples of tuberculous conditions mentioned in this report refer therefore only to the septic infections with which they were complicated.

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Bier's other means of treatment by active hyperæmia as produced by hot-air baths is not applicable to acute inflammatory diseases. The few cases treated during the period of the foregoing series were confined to varicose ulcers. In all of these there was a sharp reaction, but the results, except for clearing up of the surfaces of sloughing material, were not better than those obtained by the other methods usually adopted.

Conclusions.

In the German Surgical Congress of 1906,[4] referred to before, a general survey was taken of the results. Among other speakers Lexer was inclined to restrict the application of hyperæmia without incision to the slighter forms of inflammation only, otherwise it was too risky. He thought also that the duration of the disease was not shortened and that, therefore, it was necessary to be on the watch for complications arising in the course of the ailment. Most of the other surgeons agreed that erysipelas and other streptococcic infections were not suitable for the treatment on account of their tendency to spread beyond the band, and that diabetes and varicose and thrombotic conditions of the veins were contra-indications, although cases of all these were reported as being successfully treated. On the other hand, there was almost unanimity with regard to the beneficial effects on tenosynovitis, cellulitis, and joint infections, while milder cases of osteomyelitis were greatly improved and aborted.

Bier himself reported further excellent results with osteomyelitis but admitted that his best ones were obtained in the slighter forms which had recovered in many instances without necrosis of bone. He had decided of late that pain during the constriction by a band was not always a contra-indication, as he had successful results in spite of it. It will be seen that our results have in the main borne out these conclusions, with the exception of the cases of arthritis. Moreover, it has struck us time after time how some cases, which have apparently been gaining no improvement from hyperæmia and where the band has been given up in consequence, have after a while shown a sudden healing tendency, difficult to define but quite appreciable, as if some alteration in the character of the disease had been produced by the former treatment.

In conclusion it may be admitted, without making extravagant claims for this method, that we have a valuable adjunct to other surgical treatment both for the prevention and the cure of inflammatory diseases. And it is specially with the former object that this report is presented with the hope that a wider use may be made of it by the general practitioners in dealing with such conditions in the earliest stages

Glasgow.

NOVEL METHODS OF OPERATION IN THE REMOVAL OF MALIGNANT TUMOURS.

BY HORACE MANDERS, M.D. BRUX., F.R.C.S. ENG.

THE combined surgical and electrical treatment for cancer, recently called "fulguration" (or treatment by lightning), a term proposed by Professor Poggie in preference to that of "sideration" (or treatment by flashes), the name given to the method by its introducer, Dr. de Keating-Hart of Marseilles, has created lately a considerable and increasing interest on the continent. In the English medical press there have been but few communications, of which some are so electrically vague or incorrect that it would be impossible for anyone not well versed in

[4] Zentralblatt für Chirurgie, 1906.

the practice of oscillatory electricity to gather what the technique really is. The best communication is naturally from the pen of Dr. de Keating-Hart himself in the current number of the *Archives of the Roentgen Rays*, but even this article leaves much unsaid. As the journal in question is devoted to the higher technicalities of therapeusis by electricity the article by Dr. de Keating-Hart is very likely to escape the notice of surgeons who might wish to essay in their own practice this novel method of operating upon cancer. A correct and fairly detailed account in a journal perused by the profession generally may be of wider service —may fill up any hiatus left in earlier communications—and enable a comparison to be drawn between this system and that of "electroscision," which I now make public for the first time.

The novelty in "fulguration" consists in the *application* of oscillatory electricity in combination with actual surgery; there is neither novelty in the technique nor in the apparatus used. So long ago as the Moscow Congress of 1897 Dr. Oudin[1] drew attention to the destruction of condylomata, &c., by means of what is now known as fulguration, but the apparatus available in those days did not give a sufficiently large output to deal thoroughly with the more serious and refractory epitheliomata. In 1904 the Gaiffe-d'Arsonval apparatus had been designed, which fully answers the purpose by giving a short, thick, hot spark instead of the longer, thinner, and less effective spark of the earlier form of apparatus. With the new form epitheliomata were easily and rapidly destroyed. Dr. Oudin read a paper before the Société Française d'Electrothérapie et de Radiologie Médicale on June 15th, 1906, in which he drew attention to the radical cure of epitheliomata by this means, and M. Bergonié and M. Bordier have been able to report similar cures by the same technique which I have quoted in a previous article.[2] It is not necessary to have recourse only to the apparatus mentioned; equally good results can be obtained with an ordinary high-frequency apparatus provided that an electrolytic interrupter is used, but the following points must be borne in mind: the retardation of oscillation should depend upon the impedence of the inductance and not upon the capacity of the condensers; hence the condensers should not have a capacity of much more than 1-300th of a microfarad and the number of loops in the inductance coil should be considerable.

I have recently had the opportunity of inspecting a de Keating-Hart apparatus and noticed that the resonator, which is of the Oudin type, is a quarter as long again as is usual. This is fixed upon a table with the condensers, in the form of two Leyden jars underneath—a very usual form of high-frequency apparatus. The condensers at first sight appear to be of very large capacity, but a closer inspection shows that the glass of which they are composed is exceedingly thick, so that the distance between the armatures (usually denominated by the symbol) is relatively very great; hence the true capacity of the ars is much less than it appears. Thus the relation of condenser to inductance is, as it should be, according to what I have already said. The tuning, by which the maximum alue of the spark at the free end of the resonator is btained, is effected by throwing more or less loops of wire nto the oscillating circuit by means of a flap contact. Dr. de Keating-Hart's special electrode consists of an nternal moveable conductor, inclosed within a short glass heath set in a vulcanite handle. This conductor, which consists of a wire terminating in a small sphere of about the ze of a pea, can be slipped up and down the glass heath by manipulating a button of insulating material on he stem after the fashion of a pocket propelling pencil nd after the idea of a Bisserié electrode. The glass art of the sheath is in the form of a beak like an rdinary water-tap; it is of considerable thickness with n internal diameter of about a quarter of an inch. The nd is open and the whole of the sheath is made hollow to llow of carbonic acid or sterilised air being pumped through, he idea being to cool the electrode and possibly the spark. ersonally, I do not think that this would have the slightest ffect and in any case would be quite needless.

There are two methods of applying the "fulgur" mentioned by Dr. de Keating-Hart which have been termed bipolar and unipolar respectively, both vile terms, insomuch as in oscillatory electricity there are *no* poles. The proper terms are bi-phase and uni-phase, but by whatever name we call them the difference between them is this—that in the bi-phase the patient is attached directly to one extremity of the oscillating circuit, and is fulgurated from the end of the resonator, in which case the fulgur is very severe and destructive, a seeming advantage, but as it causes such violent contractions as to be dangerous in the neighbourhood of vital organs it has to be used with caution. In the uni-phase method the patient is not attached to the oscillatory circuit at all but to earth. The fulgur in this method being much less violent is more manageable and is preferred by Dr. de Keating-Hart certainly in the late stage of the operation. There is a third method which I do not find mentioned by either Dr. de Keating-Hart or by any of his disciples. It is an intermediate method, in which the patient is treated by one phase and the other is supplied from the floor, walls, &c., of the room by connecting the proximal end of the inductance coil to earth. I generally use this method at the East London Hospital for Children to destroy warts, growths, &c.

For the actual operation metal tables must be avoided because of the violence of the sparks. Dr. de Keating-Hart divides the operation into four stages: (1) surgical; (2) electrical; (3) surgical; and (4) electrical. 1. The surgeon divides the tissues and lays bare the neoplastic masses without separating them. 2. The tumour is fulgurated by the strongest sparks so as to produce the greatest possible effect in the shortest time. The duration of this is from "a few minutes up to ten."[3] 3. The surgeon excises the growth. 4. Fulguration again. In his article Dr. de Keating-Hart says little about this fourth stage, which is really the most interesting and important, and gives neither directions nor the length of time of application. Benckiser and Krumm of Karlsruhe, who witnessed such operations[4] give the duration of the fulguration as "about 45 minutes." The tissues become ischæmic and the cut capillaries cease to bleed. No actual scab is formed but a fine layer of clot, which eventually becomes detached, as happens in burns. The wound is then closed, provided with thorough drainage, and covered with gauze plentifully sprinkled with sodium biborate, over which is placed a large pad of cotton wool. This dressing, which is changed after 24 hours, is often very painful. Cicatrisation is rapid after the slough separates, but complete healing is slower than after an ordinary surgical operation.

Several views have been taken by different observers of the action of the fulgur upon the tissues. Dr. Oudin[5] is of opinion that the heat of the spark acting as a thermic caustic is not the sole cure, for he has seen (and this is my own experience also) warts disappear in a mass through which the fulgur had cut but a single track. He thinks that a spasmodic state of the capillaries, with perhaps a certain degree of cellular necrobiosis, must play a part, also that these sparks, like x rays, seem to have a selective property upon neoplasms. René Desplats[6] says that a reaction occurs in the healthy tissues—a reaction which is lymphatic and eliminating, a kind of lymphorrhœa which drives all histological traces of cancer out of the lymphatic vessels. Dr. de Keating-Hart assumes that the fulgur exercises a special vitalising action in the cells of the organism, inciting them to become physiologically more active and indirectly to gain a vital mastery over the cancer cells. Nagelschmidt[7] is exceedingly trenchant in his criticisms and fails to appreciate the claims put forward by the exponents of the new method. He says that both from the point of theory and from practical experience he is forced to believe that fulguration is a clumsy method of applying heat and at the same time a very costly one.

There is a great deal to be said in favour of the views expressed by René Desplats, for in the treatment of warts we often see this lymphorrhœa at the time of the application, the appearance of which, as pointed out to me by Branth of New York, is an indication at once to stop the application, and there can be little doubt in the minds of those who are in the habit of using this technique in local conditions that these sparks have a selective and elective property over growths. That the fulgur will destroy any low-class cell with which it

[1] Oudin: Archives of the Roentgen Rays, July, 1906.
[2] Oudin: Ibid.
[3] Benckiser and Krumm: Brit. Med. Jour., August 15th, 1908.
[4] Benckiser and Krumm: Ibid.
[5] Oudin: Loc. cit.
[6] Le Nord Médical, Jan. 15th, 1908.
[7] Deutsche Medicinische Wochenschrift, March 5th, 1908.

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There are two methods of applying the "fulgur" mentioned by Dr. de Keating-Hart which have been termed bipolar and unipolar respectively, both vile terms, insomuch as in oscillatory electricity there are *no* poles. The proper terms are bi-phase and uni-phase, but by whatever name we call them the difference between them is this—that in the bi-phase the patient is attached directly to one extremity of the oscillating circuit, and is fulgurated from the end of the resonator, in which case the fulgur is very severe and destructive, a seeming advantage, but as it causes such violent contractions as to be dangerous in the neighbourhood of vital organs it has to be used with caution. In the uni-phase method the patient is not attached to the oscillatory circuit at all but to earth. The fulgur in this method being much less violent is more manageable and is preferred by Dr. de Keating-Hart certainly in the late stage of the operation. There is a third method which I do not find mentioned by either Dr. de Keating-Hart or by any of his disciples. It is an intermediate method, in which the patient is treated by one phase and the other is supplied from the floor, walls, &c., of the room by connecting the proximal end of the inductance coil to earth. I generally use this method at the East London Hospital for Children to destroy warts, growths, &c.

For the actual operation metal tables must be avoided because of the violence of the sparks. Dr. de Keating-Hart divides the operation into four stages: (1) surgical; (2) electrical; (3) surgical; and (4) electrical. 1. The surgeon divides the tissues and lays bare the neoplastic masses without separating them. 2. The tumour is fulgurated by the strongest sparks so as to produce the greatest possible effect in the shortest time. The duration of this is from "a few minutes up to ten."[3] 3. The surgeon excises the growth. 4. Fulguration again. In his article Dr. de Keating-Hart says little about this fourth stage, which is really the most interesting and important, and gives neither directions nor the length of time of application. Benckiser and Krumm of Karlsruhe, who witnessed such operations[4] give the duration of the fulguration as "about 45 minutes." The tissues become ischæmic and the cut capillaries cease to bleed. No actual scab is formed but a fine layer of clot, which eventually becomes detached, as happens in burns. The wound is then closed, provided with thorough drainage, and covered with gauze plentifully sprinkled with sodium biborate, over which is placed a large pad of cotton wool. This dressing, which is changed after 24 hours, is often very painful. Cicatrisation is rapid after the slough separates, but complete healing is slower than after an ordinary surgical operation.

Several views have been taken by different observers of the action of the fulgur upon the tissues. Dr. Oudin[5] is of opinion that the heat of the spark acting as a thermic caustic is not the sole cure, for he has seen (and this is my own experience also) warts disappear in a mass through which the fulgur had cut but a single track. He thinks that a spasmodic state of the capillaries, with perhaps a certain degree of cellular necrobiosis, must play a part, also that these sparks, like x rays, seem to have a selective property upon neoplasms. René Desplats[6] says that a reaction occurs in the healthy tissues—a reaction which is lymphatic and eliminating, a kind of lymphorrhœa which drives all histological traces of cancer out of the lymphatic vessels. Dr. de Keating-Hart assumes that the fulgur exercises a special vitalising action in the cells of the organism, inciting them to become physiologically more active and indirectly to gain a vital mastery over the cancer cells. Nagelschmidt[7] is exceedingly trenchant in his criticisms and fails to appreciate the claims put forward by the exponents of the new method. He says that both from the point of theory and from practical experience he is forced to believe that fulguration is a clumsy method of applying heat and at the same time a very costly one.

There is a great deal to be said in favour of the views expressed by René Desplats, for in the treatment of warts we often see this lymphorrhœa at the time of the application, the appearance of which, as pointed out to me by Branth of New York, is an indication at once to stop the application, and there can be little doubt in the minds of those who are in the habit of using this technique in local conditions that these sparks have a selective and elective property over growths. That the fulgur will destroy any low-class cell with which it

[1] Oudin: Archives of the Roentgen Rays, July, 1906.
[2] Oudin: Ibid.
[3] Benckiser and Krumm: Brit. Med. Jour., August 15th, 1908.
[4] Benckiser and Krumm: Ibid.
[5] Oudin: Loc. cit.
[6] Le Nord Médical, Jan. 15th, 1908.
[7] Deutsche Medicinische Wochenschrift, March 5th, 1908.

comes into contact seems certain. Nagelschmidt chiefly bases his views on the fact that if a bacterial or amœbic culture is sparked by the fulgur it is practically impossible to obtain sterility. As it has never yet been proved that the cancer germ is either a bacterium or an amœba I fail to see the cogency of his argument.

If fulguration has in any way reduced to a minimum the recurrence of cancer after operation the combined operation is fully justifiable and must be regarded as a distinct gain in treatment. The demerits of the new operation are: (1) that the length of time during which the patient must be kept under anæsthesia is much prolonged; (2) that the anæsthetic must be chloroform, because the more volatile ether is apt to catch alight from the sparks; (3) that anæsthesia, besides being prolonged, must be deep, because the fulguration, especially in the second stage of operation, when the biphase method is used, is very painful; (4) the disadvantage during the operation of having to change from one instrumentation to another; (5) the difficulty of managing and controlling a rush of violent sparks; and to these must be added (6) the uncertainty of being able to reach every part of the incised area with a series of sparks which are not continuous but intermittent, as will be explained immediately.

Electroscision.—The whole of the disadvantages enumerated above may be obviated and greater security attained by an entirely novel method of operating, to which I have given the name of electroscision. The essence of the technique is the utilisation of the continuous and undamped oscillations of electricity instead of the intermittent and rapidly damped trains of oscillations employed in the production of fulguration. The principal differences between the two are that in fulguration the spark really resembles forked lightning in its discharge, for a violent stream of sparks springs from the electrode to the most salient points opposed to it, so that it is quite possible for a germ lying in a sulcus, or even well in the open, to escape its destructive influence. Like lightning, too, the spark is intermittent. Just as the condenser cloud has to be charged up again to the breaking point before another flash can occur, so must time elapse until the Leyden jars are again recharged by the coil or by the transformer, whichever is used. True it is that the fulguration spark appears to be continuous, but that is a visual error due to the retention of impression upon the retina; there is actually a relatively very wide interval indeed between each train of sparks. The disruptive discharge of a condenser is all over in the 100,000th part of a second and cannot take place again until the condensers are recharged. Let us take the most rapid means we have of effecting this—that is to say, by means of the electrolytic interrupter, which will break the current from 600 to 1000 times per second. With the most favourable of these figures we find that, although we get 1000 trains of sparks per second, yet each train lasts no longer than 1-100,000th of that period; consequently to one period of effectivity there are 99,000 equal periods of total inactivity. Reckoned in time, this means that for the sum of only one second of actual fulguration there are 999 seconds, or about 16½ minutes, of absolute ineffectivity. Expressed in lineal measure, to three centimetres of action there would be nearly three metres of inaction. On the other hand, in electroscision there are no trains of oscillations violent at first though rapidly extinguished but oscillations which are continuous and steady, of an even alternation of phase, and giving quite a small spark, less bright even than the scintillation of a little medical battery, yet possessing all the destructive, selective, and physiological attributes of the fulminating spark in an enhanced degree.

The instrumentation for the production of the continuous oscillations used in electroscision differs considerably from that used in the ordinary high-frequency of intermittent oscillations. It is much less cumbersome, as we do not need either the heavy coil with its condenser or the equally weighty transformer. The apparatus is extremely simple. It consists of: (1) a resistance to control the current; (2) a gap in the main circuit, in which an arc occurs when the current flows; (3) a chamber for the arc gap so constructed that it can answer the purpose of containing air or any gas under pressure or a vacuum at will; and (4) a shunt circuit across the arc gap, consisting essentially of a condenser and of an inductance coil in series with it.

I think that it would be rather beyond the scope of this article to enter too fully into technical details; I have mentioned them elsewhere.[8] Suffice to say that by a special form of arc, which for the sake of brevity I call the "zenal," I have been able to dispense with the nuisance of hydrogen gas as used in Poulsen's system of continuous oscillations, which has been much mentioned in the press during the last two years. I have also done away with the cumbersome magnetic field and by certain dispositions I arrange for the perfect safety of both operator and patient. Lastly, I provide a simple and perfect tuning by varying the capacity of the condensers both in the oscillating circuit and in the derived circuit which I use to obtain the requisite potential. In this system we do not require the potential necessary in the spark system, which runs into from 250,000 to 300,000 volts. The operation itself presents no remarkable features. The whole is carried out by the surgeon himself. The knife is fitted with an ivory handle, through which runs the conducting wire to the blade, which thus becomes both the instrument of section and that which conveys the thermic, physiological, and electric phenomena to the tissues at the same moment as they are divided. The tissues are seared as they are cut and the capillaries are sealed as they are divided; hence there is little or no bleeding and no need for sponging and disturbance of cancer cells, a point greatly insisted upon recently.[9] The surgeon has a good view of his parts, for the wound made is not the least like an ordinary burn; I have already described its appearance.[10] At the closing of the wound the needles may be placed in a holder provided with insulating handles. The only objections I know of are two and are of quite minor importance. One is that the surgeon may get a burn if he should touch his hand with any part of the blade of the knife, and the other is the hampering caused by the conducting wire being attached to the knife.

Harley-street, W.

[8] Journal of the Roentgen Society, No. 17, vol. iv.
[9] Technique of Cancer Operations, by Ryall, July, 1908.
[10] THE LANCET, April 18th, 1908, p. 1176.

RECENT INVESTIGATIONS INTO THE PATHOLOGY AND TREATMENT OF GENERAL PARALYSIS AND TABES DORSALIS.[1]

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I PROPOSE to state very briefly some of the main results of the observations that have been made during the past year in the course of the special investigation into the pathology and treatment of general paralysis and tabes dorsalis commenced by my colleagues and myself in 1902. For the sake of those who are not familiar with the contents of the published papers I shall preface what I have to say by a short summary of the observations and conclusions already recorded. We have found that bacilli of the diphtheroid group, possessing prominent meta-chromatic granules, can be shown to be invading the tissues in all cases of advancing general paralysis and tabes dorsalis. The chief seats of invasion or of the infective foci are the naso-pharyngeal and oral mucosæ in cases of general paralysis and the genito-urinary tract in cases of tabes. Evidence of such invasion has been obtained by the direct examination of scrapings from the surface of these mucous membranes. Confirmatory results have been yielded by bacteriological examination. Further evidence in support of the occurrence of such invasion has been obtained from the examination of the cerebro-spinal fluid removed by lumbar puncture. In the centrifuge deposit from this fluid bacilli have been demonstrated in several instances and in two cases the deposit has yielded a pure culture of a similar bacillus. Growths of diphtheroid bacilli have now been obtained from the brain post mortem in numerous cases of general paralysis and these micro-organisms have also been demonstrated in microscopical sections of the brain. It has been ascertained that two species of the diphtheroid bacilli isolated from cases of general paralysis or of tabes dorsalis are often virulent to mice and rats, whilst being

[1] A paper read before the Interstate Medical Congress, Melbourne, held on Oct. 19th to 24th, 1908, in the Section of Neurology and Psychiatry.

innocuous to guinea-pigs. The first of these species we have termed the "bacillus paralyticans longus." It is characterised by certain morphological and cultural characters and by the fact that it produces an acid reaction when grown in a glucose test broth, but not when grown in numerous other laboratory test broths employed in determining bio-chemical reactions. The second species (bacillus paralyticans brevis) is specially characterised by the fact that it produces an acid reaction in a saccharose test broth as well as in the glucose broth, whilst it gives a negative result with numerous other test broths. Some of the rats that have succumbed to the action of the bacillus paralyticans longus have shown the cerebral changes characteristic of general paralysis, whilst several of those subjected to experiment with a strain of the bacillus paralyticans brevis suffered from acute nervous symptoms, and microscopical preparations show very marked morbid changes in their cortical and spinal nerve cells. Dr. G. D. McRae and I have further recorded the fact that we have found that treatment of cases of general paralysis and tabes dorsalis with an anti-bacterial serum, prepared in the sheep by immunisation with these special diphtheroid bacilli, has been attended in many cases by distinct arrest of the symptoms indicative of active progression of the disease. Before using an anti-serum we obtained similar but less distinct results by treatment with vaccines composed of killed cultures of these bacilli.

In the course of the investigations carried out more recently several new facts have been elucidated and much evidence has been obtained confirmatory of contentions already advanced. In the clinical portion of these researches I have had the coöperation of Dr. R. Dods Brown. It has been found that many strains of the bacillus paralyticans longus, when provided with ordinary aerobic cultural conditions, will not grow at all, or will grow only very feebly for two or three days and then die out. If, however, semi-anaerobic conditions are provided, by heating the upper end of the culture-tube and dipping the cotton-wool plug in melted hard paraffin before it is inserted, the bacilli will grow in minute but distinct colonies. That this bacillus is not essentially different from the vigorously growing types is evidenced by the facts that it has the same bio-chemical reactions, that in many instances it has a distinct degree of virulence to mice, and that in respect of the characters of growth there is a gradual series, extending from feeble to vigorous strains. In the large majority of instances the bacillus paralyticans longus is of the feebly growing type and requires the provision of semi-anaerobic conditions for its successful cultivation. I now always use a glucose agar medium and seal the tubes in the way just described. By the employment of these cultural methods and the examination of direct films evidence has been obtained of the constant presence of these special bacilli in the nasal cavities in a fairly long series of cases of general paralysis. The study of sections of the nasal mucosa and subjacent tissues has shown that these bacilli are capable of invading along the lymphatic channels. They have now been traced along these channels, through the base of the skull, to the intracranial lymph channels and the brain. The tissues lying between the nasal epithelium and the base of the skull have been found to be loaded locally with plasma cells and disintegrating diphtheroid bacilli. A study of the pathological processes occurring in this region shows that the endothelial cells of the lymphatic channels are the chief defensive agents against the bacilli and that there are areas in which this defensive mechanism appears to have become exhausted.

By the employment of special methods, more particularly the palladium methyl-violet method, the platinum method, and the ammonio-silver process with cyanide decolorisation, it has been ascertained that the presence of diphtheroid bacilli in the brain of the general paralytic is much more common than we previously regarded it. In most instances the bacilli will not stain by the ordinary methods, either because they have suffered from lysogenic action, or because they are present only as involution forms which have little affinity for aniline dyes.

With regard to the treatment of general paralysis we have lately, I think, clearly established the fact that there is a great advantage in combining active immunisation by means of injections of killed cultures with the passive immunisation obtained from the administration of the special anti-serum. The two methods are in no way incompatible, and it may be suggested here that a similar association of active and passive immunisation (already found to be of service in immunisation against anthrax) might prove of value in several other bacterial infections. It would appear from results that we have obtained that the morbid process in general paralysis and tabes dorsalis can be arrested by these methods of treatment if it is not complicated by severe secondary infections. In the cases in which the treatment has not been successful there has always been abundant evidence of such secondary infections.

We have endeavoured to combat the naso-pharyngeal and oral infections by local measures. In view of the evidence of the destructive action of oxygen upon certain strains of the special bacilli, it occurred to me that Merck's perhydrol would be worthy of trial in the form of a nasal spray. We have used this extensively in a 1 per cent. solution, both as a nasal spray and as a mouth wash (applied daily or every other day), and there can be little doubt that distinct benefit has resulted in many cases. It is perhaps not out of place to mention here that I have found the daily spraying of the nasal mucosa with 1 per cent. perhydrol a remedy of striking efficacy in three cases of hay fever. In this malady its action is probably in part mechanical, for it is not unreasonable to suppose that the minute bubbles of oxygen which form at the surface of the mucosa serve to remove the pollen and particles of dust which, lodging there, set up such intense local irritation.

Another fact regarding the pathology of general paralysis that our more recent observations have clearly established is that secondary bacterial infections are extremely prone to occur in the infective foci. The micro-organisms concerned appear to be especially streptococci, staphylococci, and certain species of diplococci. Evidence of mixed infection may be seen in the condition of the gums in most cases of general paralysis. Pyorrhœa alveolaris, which, of course, is not by any means confined to persons suffering from general paralysis, is almost constant in well-established cases. Bacteriological examination of the contents of the spaces between the teeth and the gums and histological examination of the inflamed tissues show that numerous forms of micro-organisms, including diphtheroid bacilli, are actively invading. There is evidence that a similar multiple invasion occurs in many cases from the naso-pharyngeal mucosa. In advanced cases it extends much more widely throughout the respiratory and alimentary tracts. It is clear that in such cases we have to treat not only the primary diphtheroid infection but also these secondary infections. These we are now in some special cases endeavouring to combat by special vaccines and local measures.

My colleagues and I have always maintained that syphilis commonly plays an important part in the pathogenesis of general paralysis. We have merely contended that it does not act directly, but by impairing the local and general defences against certain bacteria. There is now strong evidence in support of the conclusion that, as a cause of general paralysis, syphilis acts mainly by damaging the nasal mucosa in such a way as to weaken its power of resistance to certain forms of bacterial attack.

Further bacteriological, histological, and experimental evidence has been obtained bearing out the opinion that tabes dorsalis is dependent upon an invasion from the genito-urinary tract by special diphtheroid bacilli. There is good reason to believe that as a predisposing factor gonorrhœa is of greater importance than syphilis. One part of the evidence in support of the conclusion that a diphtheroid invasion is the essential element in the pathogenesis of tabes consists in successful therapeutic experiments. The further course of the two cases which Dr. McRae and I have already recorded confirms the opinion we have formed that this disease, if not complicated by serious secondary infections, can be combated by serum and vaccine methods. Under such treatment the lightning pains, which in both cases were very severe, have virtually disappeared, the progress of the disease has been arrested, and the general health of the patients has undergone a very striking improvement. Details of these further observations will be published in course. For the present I would merely add that the facts recently observed have served to establish more securely the conclusions that general paralysis and tabes dorsalis are dependent upon the presence of specific infective foci, primarily localised in the naso-pharyngeal and oral mucosæ in the one case, and in the genito-urinary tract in the other, and that in both diseases the bacterial and toxic invasion is

essentially lymphogenous, as maintained by Orr and Rows on the ground of their experimental work.

Edinburgh.

A NOTE ON LA TYPHO-BACILLOSE.[1]

BY PROFESSOR L. LANDOUZY,

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I DESCRIBE under this title a type of acute tuberculosis which I first depicted several years ago.[2] In accordance with the description which I have given of it this form of disease has been recognised by civil and military medical authorities in France and abroad, but it does not appear to me to have received sufficient attention from general medical writers. Seeing the importance, both from the academic and practical points of view, of a clear statement on the subject I have thought it well to interest members of the International Congress of Washington in it.

I consider *La Typho-bacillose*, as I have called this type of acute tuberculosis which I am about to discuss, to be one of the most distinct types anatomically and clinically under which the bacillary septicæmia associated with Koch's bacillus can present itself. At the time when I first considered the condition to constitute a distinct type of tuberculosis it was classic to describe tuberculosis under the following heads:—

1. The first was a caseous broncho-pneumonia. Here weeks or months are required before tuberculosis can be diagnosed from the appearance of anatomical lesions of infiltration followed by breaking down and ulceration. These classical features of ordinary phthisis are varied occasionally by what is, or was, known as *phthisie galopante*, where the form of caseous pneumonia was the same but where the course of the disease was so much more rapid that death occurred before the ulcerative processes had proceeded to cavity. Such are the two aspects of caseous broncho-tuberculosis which formed the first division.

2. In the second division the evolution of the disease, possibly from some old focus, is quicker and wears more the character of a general infectious malady. There appear rapidly a whole series of functional troubles, circumscribed or diffuse, though more often the latter, which affect the respiratory, nervous, or digestive apparatus. The general intoxication of the organism and the rapid diffusion of the lesions prevent any of the natural attempts at healing from taking effect, and after death necropsy reveals innumerable fresh miliary granulations, which being generally disseminated through the various tissues produce the functional reactions which make up acute granular phthisis or *granulie d'Empis*.

3. In addition to these cases there are others where the bacillary infection appears with features so marked as to constitute a new type of bacillary septicæmia absolutely distinct from the preceding. This third type is characterised exclusively by a typhoid condition, with continued fever and enlarged spleen, but no signs of visceral lesions. At first sight there is a striking resemblance to typhoid fever of Eberthian type and it is easy to understand why these two diseases have been for so long and so often confused. Only slight shades of difference in symptoms permit us to differentiate them. There is first the irregularity of the temperature curve, for while the Eberthian fever is a continuous one in *typho-bacillose* we have considerable oscillations with irregularities not only from day to day but from week to week. In the second place, we have a want of correspondence between pulse and temperature, the pulse being as a rule much more accelerated among the sufferers from *typho-bacillose* than among those from Eberthian fever, while above all we have the absence of symptoms of visceral lesions, an absence of pharyngeal and bronchitic catarrh, absence of intestinal catarrh or of constipation, and finally absence of all rash, which I hold to be particularly important, as, in my opinion, where any case has been diagnosed as typhoid fever in the absence of an exanthem the diagnosis is suspect. When on rare occasions this form of continued bacillary fever *(fièvre continue bacillaire)* ends in death in two, three, or four weeks the necropsy explains the absence of visceral symptoms, showing, in fact, only the congestive and degenerative lesions common to all general septicæmias, with here and there pin-head granulations, quite insufficient in size or number to set up local troubles, though sufficient to give a specific form to the condition. I therefore recognise a double distinction, anatomical and symptomatic, between the *granulie d'Empis* and *typho-bacillose*. The absence in the latter of tuberculous ulceration in the organs, and the absence of local symptoms—pulmonary, cerebro-spinal, or abdominal—establish between these two forms of bacillary septicæmia a perfectly definite line of distinction. Another feature further accents this demarcation. While *granulie d'Empis* is always rapidly fatal, *typho-bacillose* often ends in recovery, or at any rate in the abatement of the acute general infection. During the 25 years that my attention has been directed to this particular type of disease I have not seen more than ten sufferers from *typho-bacillaire* die in the early stages. In the great majority of cases, after three or four weeks of continued fever, accompanied by more or less marked prostration leading up to the typhoid state, convalescence sets in; but, generally speaking, recovery is not complete, the invalid does not get back his "go," he does not display the fine appetite of many convalescents from typhoid fever, and emaciation persists. At the end of some weeks, or it may be months, gradually or suddenly signs of local tuberculosis appear, generally in the lung or pleura, but in children fairly often in the meninges. The following three cases well illustrate this train of events which I have for 18 years made the subject of clinical observation. They refer to patients in infancy and adolescence, those being the ages most susceptible to *typho-bacillose*—more susceptible, indeed, than is usually suspected.

CASE 1.—A child of seven years, with a good history, was attacked by an acute febrile disorder absolutely resembling typhoid fever of average intensity, save that the usual catarrhal conditions and rose rash were absent. By the fourth week he appears to be convalescent and is taken into the country and comes back practically well but still less ruddy-cheeked and stronger than a child would generally be upon recovery from typhoid fever. Winter passes uneventfully, then one morning the child is seized suddenly with headache, vomiting, fever, and convulsions, and in a few days fatal tuberculosis and meningitis bring down the curtain.

CASE 2.—The same drama in two acts may be played around a little girl. The patient has at the age of eight what is diagnosed as a mild attack of typhoid fever, though without rash or intestinal catarrh. In the seventh week bronchitis first manifests itself and disappears. But two years later there is a series of attacks of febrile bronchitis, and death occurs in about the twelfth year from tuberculous meningitis.

CASE 3.—In the third and analogous story the patient, a woman of 20 years, on the return from her honeymoon shows some of the symptoms of acute typhoid fever, though without the rash or the characteristic temperature curve. At the end of a month convalescence sets in, but is slow, the strength not returning, the appetite being poor, and the general demeanour one of sickness. Then she begins to cough and one month later I find induration of the right pulmonary apex and specific bacilli in the sputum. The disease runs its fatal course in six months.

Sometimes the convalescence which follows *typho-bacillose* appears to be entirely complete and yet, suddenly and gradually, there appear later proofs of a local tuberculous condition. Such, for example, was the history of one of my patients at the Charité, who was admitted manifesting all the usual train of symptoms of typhoid fever minus the rash. The disease ran its course, the temperature dropped gradually to normal, and we were thinking of despatching him to the country when pleurisy on the left side called for paracentesis on two occasions. As a matter of fact, the cases of definite and complete recovery from *typho-bacillose* are very rare.

The subjects of *typho-bacillose* after they have recovered from this condition nearly always live in a condition of latent tuberculosis (*en gestation de tuberculose*), and weeks, months, or even years after the initial acute septicæmia that disease becomes manifest in them.

[1] Abstract of a paper read at the International Congress on Tuberculosis at Washington, and specially translated for THE LANCET.

[2] L. Landouzy: Cliniques de la Charité, 1883, 1884, 1885, 1886. Leçons resumées in Journal de Medécine et de Chirurgie Pratiques (1883), in Praticien (1885), in Gazette des Hôpitaux (1886). Id. La Fièvre Bacillaire à Forme Typhoïde, Typho-bacillose, Clinique Médicale de l'Hôpital Laënnec, in Semaine Médicale. 3 Juin, 1891, Congrès de la Tuberculose, 1891.

As I wrote 20 years ago, it is only "after having remained for a certain time in the bacillary stage (*bacillose*), that the typho-bacillary patient shows anatomical and symptomatological evidence of a tuberculous infection." Sometimes the transition is made by imperceptible degrees, without any definite stage of convalescence. The patient suffers from continued fever whilst the tuberculous process develops and shows itself little by little. Localising signs appear, most often in the form of an apical infiltration which can be made out by percussion and auscultation. This was the case in several of my patients who were attacked with *typho-bacillose* in the springtime with no localising symptoms and died in the winter with cavities in their lungs after some ten months of continued fever, without ever having left their beds. Our present ideas about *typho-bacillose* lead us to consider the prognosis from the two standpoints of the immediate prospects of life and of the future; and the latter appears to be the more important, for death rarely occurs during the onset of the disease. It should never be forgotten that these patients, even if convalescent or apparently cured, are always in imminent danger of the onset of tuberculosis, and this fact justifies the dictum that if we consider the prognosis of *typho-bacillose quoad vitam*, it is generally less serious than that of enteric fever, whilst *quoad futuram* it is very much more grave than that of the latter disease.

Such, then, is *typho-bacillose* which I described 25 years ago as a distinct and well-defined type of an acute bacillary infection on clinical and anatomical evidence. A certain number of authors have recognised that description as well founded and brought forward observations in support of it, but it has been objected that my patients suffering from so-called *typho-bacillose* had nothing but typhoid fever originally, and that if they became tuberculous later it was on account of an associated or consecutive bacillary infection. My critics did not hesitate to declare that my cases of tuberculosis following on *typho-bacillose* were cases of typhoid fever which had become infected by phthisical patients in neighbouring beds whilst in hospital. They did not even conceive the possibility of curing this acute and febrile infective tuberculosis, to which they insisted on applying the invariably fatal prognosis proper to the acute miliary tuberculosis of Empis. The point which lent some colour to their criticism was the refinement of symptomatic distinctions on which alone I could rely to distinguish between *typho-bacillose* and typhoid fever. Indeed, at the time when I first described the former disease, in 1883, Koch's bacillus had only been discovered for one year and Eberth's bacillus was hardly yet isolated and we did not possess any method on which we could base an absolute clinical differentiation between typhoid fever and bacillosis. We were obliged to rely on the distinguishing symptoms which I have already described and above all upon the evolution of the disease, and we had to regard with suspicion those cases of apparent typhoid fever which recurred or lingered on for a long time. But at the present day the laboratory methods which were discovered 10 or 15 years ago, and of late years enter into the scheme of ordinary practical medicine, have given us scientific proof of the existence of *typho-bacillose* and at the same time have helped us to recognise it in a remarkable degree. On the one hand, we can establish with perfect accuracy every diagnosis of enteric fever due to Eberth's bacillus by searching for that organism in the fæces, by Widal's serum reaction, and, above all, by culture from the blood; similar methods give us the means of diagnosing with the same certainty the disorders due to the para-typhoid bacillus. On the other hand, the inoculation of guinea-pigs with blood collected from a vein, the serum reaction of Arloing and Courmont, the ophthalmic reaction of Calmette and Guérin, and Jousset's inoscopy[3] afford certain evidence of a septicæmia due to Koch's bacillus.

Applied to the diagnosis of *typho-bacillose* these laboratory methods prove an indispensable assistance to clinical medicine, for they permit us to eliminate diagnosis of Eberthian fever, and even to cultivate the causal agent of the malady, Koch's bacillus. Is it necessary to add to these arguments further proof of the existence of *typho-bacillose* and to say that experiment has been able to reproduce the condition in animals with its different anatomical manifestations, its symptomatology, and clinical course? In 1888 Yersin[4] showed that rabbits inoculated with certain cultures of tubercle bacilli died from 12 to 27 days after having presented such symptoms of an acute infection as fever and weakness, and at the necropsy the lesions described were congestive and degenerative in the liver and spleen, but there were no granulations or visible tuberculous lesions.

Strauss and Gamaleïa and later Pilliet have had identical results with the guinea-pig and the rabbit. Recently Gougerot[5] has discovered in the rabbit in a yet more complete manner the anatomical and clinical history of *typho-bacillose*. Since 1898 Arloing[6] has recognised this type of tuberculosis. Not only has he reproduced, like Yersin, a rapidly fatal form but he has also reproduced the form which comes to maturity in two stages, having, first, an acute typhoidal phase from which recovery appears to take place and, secondly, after a more or less prolonged abatement of symptoms, an acute or chronic tuberculosis with the usual tuberculous caseous lesions. In one case Gougerot saw a rabbit which had been inoculated through the auricular vein present the acute phase of *typho-bacillose* and eventually and definitely recover. These experiences, as they prove the different points in the history of *typho-bacillose*, furnish remarkable examples of the different types of infection produced in the same animal by Koch's bacillus. After a period of *typho-bacillose* with lesions of the Yersin type animals have died with tuberculous lesions of the Villemin type. As Gougerot writes: "Le type Villemin a succedé au type Yersin; de même que dans la typho-bacillose de l'homme, le type Laënnec succède au type Landouzy."

I do not think that after all these proofs brought together from the laboratory and from clinical experience that anyone can longer doubt of the morbid entity which I have individualised under the name of *typho-bacillose*. The condition may be termed *Fièvre Bacillaire non-Granulique à Forme Typhoïde*, but the term I have used has the advantage of following the method of the encyclopædists, being a brief description rather than a definition, while it covers at the same time the etiological, pathogenic, anatomical, pathological, and symptomatological points of the disease.

Washington.

[3] Jousset: Semaine Médicale, Jan. 19th, 1903.

[4] Yersin: Études sur le Tubercule Expérimental, Annales de l'Institut Pasteur, 1888, Thèse Inaugurale, Paris, 1888.

[5] Gougerot: La Typho-bacillose de Landouzy, Diagnostic Bactériologique à la Période d'État in Presse Médicale, Août, 1908. Id.: Reproduction Expérimentale de la Typho-bacillose, Revue de Médecine, Juillet, 1908.

[6] S. Arloing: Comptes Rendus de l'Académie de Science, June, 1908.

TWO INTERESTING CASES OF INTUSSUSCEPTION.

BY R. F. JOWERS, F.R.C.S. ENG.,
SURGEON TO THE SUSSEX COUNTY HOSPITAL, BRIGHTON.

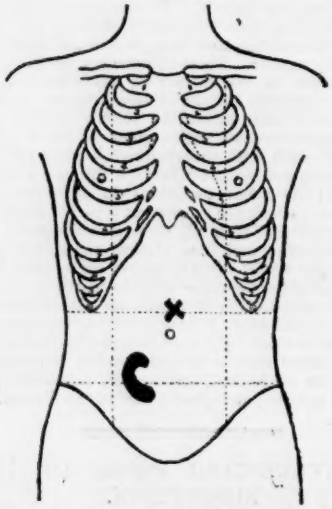
CASE 1.—The patient was a lad, aged 15 years, who was sent to the Sussex County Hospital by Mr. B. M. Young of Hassocks and who was admitted on Feb. 1st last, complaining of pain in the abdomen and vomiting. He had been quite well up to the day before admission. During the afternoon of Jan. 31st he had felt a slight pain in the umbilical region which had lasted for an hour or two and then had passed off. There had been no vomiting. At 4 A.M. on the day of his admission to hospital griping pain in the abdomen had come on, which the patient referred to a point just above the umbilicus in the middle line, and which had been followed quickly by vomiting. Attacks of pain and vomiting had recurred repeatedly since and were made worse by attempts to take food. The bowels had acted daily and were moved on this day but nothing abnormal was noticed in the motion.

On admission to hospital the tongue was found to be clean and moist, the pulse was good and normal, and the temperature was 100° F. There were pain and tenderness in the abdomen, the tenderness being referred to point X in Fig. 1 (the ninth dorsal segment supplying the small intestine). A visible horse-shoe shaped coil of bowel stood out conspicuously on the right-hand side of the lower abdomen. There were no peristaltic movements and nothing could be felt per rectum.

At 3.30 P.M. the abdomen was opened through the right rectus sheath. A dark congested coil of bowel (small

intestine) was brought out of the abdomen, which still retained its gloss and proved to be an intussusception of the small intestine. The mesenteric veins were thrombosed. Two inches from the margin of the intussuscipiens a hard round lump could be detected in the bowel which felt hard enough for a gall-stone. All attempts at reduction having failed, clamps were applied and the whole was resected, the ends being joined "end to end." The wound was closed in layers with catgut sutures and the skin with silkworm gut. The portion removed when reduced and spread out measured 56 inches. A small, sessile, very hard round tumour of the size of a large cherry was found to be growing from the inner wall of the returning layer of the bowel. Between the opposed peritoneal surfaces was a quantity of dark-coloured offensive fluid. During the first 30 hours after operation the

FIG. 1.



patient had a great deal of retching and pain. The pain was referred to the part below the umbilicus and it came on in paroxysms, lasting from 10 to 20 minutes. The paroxysms were apparently very severe, although the patient passed flatus well with various enemata. He was given belladonna, hyoscyamus, aspirin, &c., by the mouth but no relief was obtained and he worked himself up to a high pitch of excitement. Small doses of calomel made the pain worse and eventually he was given one-twelfth of a grain of heroin hydrochloride hypodermically which soothed him at once and he slept for four and three-quarter hours and for nearly all the following day. On the third, fourth, and fifth days there were occasional returns of griping pain, more or less severe, but this pain was checked at once by heroin hydrochloride. The bowels were kept active from the first with enemata twice daily and at no time was the abdomen distended to any degree. On the ninth day he was given liquorice powder. Half a pint of saline solution was administered per rectum four-hourly for the first two and a half days; albumin water, and soon after peptonised milk, was given by the mouth eight hours after the operation. On the third day milk jelly, Brand's essence, &c., were given; on the succeeding days Benger's food, beaten-up eggs, &c. On the ninth day the patient had pounded fish and custard and after two weeks he took boiled eggs and thin bread-and-butter and tripe and boiled fish without discomfort. The patient was up in a chair at the end of three weeks and after four weeks he went home in excellent health.

The following pathological report of the case was made by Dr. F. G. Bushnell: "The tumour is a fibroma of old standing, is not vascular, and contains foci of lymphocytes, but most of the tissue is mature connective tissue. The small cells indicate that growth is proceeding."

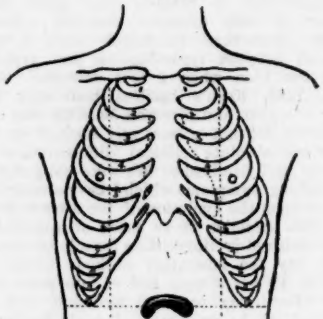
Apart from the fact that the patient made a good recovery after the removal of nearly five feet of small intestine without any apparent impairment of his power of digestion, the case is interesting from the position of the growth found in the intussusception. It is generally recognised that when an intussusception occurs the apex remains constant and its increase takes place at the expense of the intussuscipiens. When a polypus or other tumour is the cause of the intussusception it is found at the apex. Assuming this to be the usual course of events, it is obvious that the fibroma in this case occupied an unusual position and could only have been indirectly the cause of the intussusception, which must have started considerably higher up. In other cases I have met with, where a polypus or a growth has caused the intussusception, it has always been found at the apex.

CASE 2.—The patient was a male infant, aged one year and eight months. At 8 A.M., six hours before admission to hospital, the child had had a loose motion; he had had three others during the morning, the last containing a little blood-stained mucus. He vomited one hour after the onset and twice thereafter. He had had practically no tenesmus or griping pain. The bowels had been rather loose for at least a month before admission to hospital. There had been nothing in the diet within a day or two before admission likely to set up any violent peristalsis.

On admission to the hospital the child was found to be in a very fairly good condition and was not suffering greatly from shock. The pulse was 96 and the temperature was 97° F. A sausage-shaped tumour was felt in the tranverse colon, just under the liver. Nothing was felt per rectum and no blood or mucus came away on the finger. (Fig. 2.)

A three-inch incision was made through the right rectus sheath, close to the middle line. An intussusception was found of five inches of the lower end of the ileum into the large intestine, which reached round almost to the splenic flexure and was easily reduced. No local exciting cause was discovered in the bowel. The appendix was found to be congested and was removed. The abdomen was closed in three layers, the peritoneum and posterior sheath of the rectus with catgut, the anterior sheath with catgut, and the skin with silkworm gut sutures. The patient passed the first 12 hours well, retained the saline solution given per rectum, and took milk and water. He then began to get blue and had some laryngeal dyspnœa, while the pulse

FIG. 2.



became small and rapid. The child was put in a steam tent and he improved at once. After eight hours the steam tent was discontinued. On the fifth day after the operation the deep sutures were found to have given way and the bowel was bulging under the skin. There were no symptoms and as the baby was still weakly the abdomen was strapped until he became stronger. A fortnight after the operation the wound was opened up and a few adhesions were broken down. The edges of the wound were freshened and the parietes were sutured with through-and-through sutures of silkworm gut. The child took the anæsthetic badly and vomited some milk which had been given three and a half hours earlier. The wound healed well; the intermediate stitches were removed on the seventh day and the

rest on the tenth day. After three and a half weeks the baby was allowed to be taken home with a well-healed abdominal wall.

For the notes of these cases I am indebted to Mr. H. N. Fletcher, senior house surgeon.

Brighton.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF QUININE POISONING.

BY ALLAN C. PARSONS, M.R.C.S. ENG., L.R.C.P. LOND., WEST AFRICAN MEDICAL STAFF; LIEUTENANT, R.A.M.C. (TERRITORIAL); MEDICAL OFFICER, LOKOJA, NORTHERN NIGERIA.

THE patient, an American citizen, came to me in December, 1907, complaining that he was unable to take quinine. He gave the following history. He was born in 1873 in New York, where he had chiefly resided. He lived for nine years, however, in Australia and had visited several places in North and South America. For the last two years he had resided in Manchester until December, 1907, when he arrived in Nigeria. He had had no serious illness that he could remember, but when 16 years old and while residing in New Jersey he took quinine for a cold. He became so ill that a medical man was called in, who said that he had been poisoned by quinine. Two years ago he suffered in a similar way after imbibing some beverage which he afterwards discovered contained quinine in small doses. Fortunately, it appeared that he never had to take quinine for a malarial attack. While travelling from England to Nigeria the patient was advised by his fellow passengers to begin taking his daily dose of quinine. He accordingly took five grains of euquinine, but two hours afterwards he became violently ill and henceforth discontinued taking the drug till he saw me on Boxing Day, at Lokoja. He was admitted into hospital at 9 A.M. At 9.30 A.M. two and a half grains of quinine-bisulphate solution were given and he at first sat in a deep chair on the verandah. In about an hour's time he said, "It is beginning," and he then complained of a "sinking" feeling in the abdomen and flushing of the face occurred. He was now put to bed in the ward. Intense irritation and discomfort then began in the feet and gradually spread throughout the body. This was quickly followed by a rapidly spreading rash, erythematous rather than urticarial in character and most marked on exposed portions of the body. His appearance had by now undergone a complete change: the face was flushed and the skin everywhere was hot, hyperæmic, and dry; the temperature, however, was subnormal. There were distracting tinnitus and frontal headache, but no amaurosis. The heart's action was seriously weakened and the pulse was feeble, accelerated, and irregular; there were palpitation and shortness of breath. The patient looked and felt ill, the flushed appearance, restlessness, and general pruritus producing a picture of severe anguish. At noon he had a syncopal attack while trying to rise from his bed. At about 2 P.M. the pruritus and erythema began to pass off, but nausea and severe headache remained. At 3 P.M. the temperature had risen to 101° F., and he was perspiring profusely. By dinner-time he felt better, all the symptoms had cleared up with the exception of headache. At 10 P.M. he was sleeping quietly with a normal temperature.

On the next day the patient was in his normal health, but a detailed physical examination showed that there was very severe anæmia with hæmic heart murmurs. The organs were apparently healthy otherwise and no malarial parasites were found in the blood. Under the circumstances it was considered advisable to invalid him home, and he accordingly left for England at the end of January. He never reached home, however, for he died from "fever" on the return voyage.

Genuine cases of inability to take quinine are rare in my experience, and dislike, rather than real disability, is generally at the bottom of most troublesome cases of quinine antipathy. The case just quoted, however, should teach us to be on our guard and no conclusions should be drawn until actual experiments have been made. It appears to me also that it would be a sound practice if all officials and others who contemplated residing in malarial districts were examined as to their capability of taking quinine before they ventured out into unhealthy lands.

Lokoja, Northern Nigeria.

SEVEN CASES OF POISONING BY CHEESE.

BY W. B. EVANS, M.B., C.M. ABERD.

ALTHOUGH cheese is one of the most common articles of food and is eaten in various stages of decomposition or "ripeness," apart from the indigestibility due to its physical condition it rarely gives rise to serious trouble. The following is a brief account of seven cases of poisoning under my care which were undoubtedly due to cheese and which, on account of rarity of the cause, are, I think, worthy of record.

I was recently called to see a boy, aged three years, who was ill. On my arrival I found the child to be collapsed, cold, in a profuse perspiration, with a subnormal temperature, and almost pulseless. He was said to have been taken suddenly ill about an hour previously with abdominal pain and violent vomiting. Whilst examining this child a brother, aged eight years, commenced vomiting and crying out about a pain in the epigastric region, and before I left another brother, aged 12 years, came in saying that he had just been attacked with violent vomiting and epigastric pain. On making inquiries about their food I was informed that their last meal had consisted of bread and cheese and tea.

On the same night at about midnight I was called to see three brothers, their ages ranging from 10 to 16 years, who were suffering from abdominal pain and vomiting which had suddenly come on. One of them complained of diarrhœa in addition. The supper of these lads had consisted of biscuits and cheese.

On the following afternoon I was called to see another boy, aged six years. Him I found in a collapsed condition, having vomited violently, sweating, cold, and nearly pulseless—in a precisely similar condition to the first child. He, too, had had cheese for his dinner.

The treatment consisted of emetics of mustard and water to commence with, except in the cases of the collapsed children where brandy and water was prescribed. A bismuth mixture was exhibited to all and to the boy with diarrhœa a dose of castor-oil was given. The patients all did well; within 24 hours they had practically recovered, and within 48 hours those old enough had returned to school and to work. Several adults, including these children's parents, who had also eaten this cheese told me that they had suffered from epigastric pain and nausea shortly afterwards but not sufficiently to call for treatment.

The interesting features of this epidemic are: first, the cause, cheese, which rarely gives rise to such severe symptoms; and, secondly, the ages of the patients. In each of the seven cases the age was under 17 years, and although the parents and other adults partook of the same food they were not affected to any appreciable extent. In fact, the severity of the symptoms appeared to be in the inverse ratio to their ages, the two youngest patients being those most seriously affected and having a really narrow escape.

I examined the cheese, which smelt rather strongly and had a somewhat crumbly appearance, but was not discoloured or offensive, and was said to be new. There was nothing about it to warn purveyor or purchaser that it was not wholesome.

Tyrotoxicon, the ptomaine in new cheese, produces a series of symptoms very similar to those described above, and I have no doubt that this alkaloid was the cause of the epidemic.

UNIVERSITY OF CAMBRIDGE, DEPARTMENT OF MEDICINE.—The R. C. Brown Pathological Scholarship in connexion with the Study of Special Diseases has been awarded to Miss E. H. Morris, M.B., B.S. Lond.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.[1]

PATHOLOGICAL SECTION.

Tick Fever.—A Filaria.—Conradi's New Method of Isolating the Typhoid Bacillus.—Leishman's Stain.

A MEETING of this section was held on Nov. 3rd, Mr. S. G. SHATTOCK, the President, being in the chair.

Lieutenant-Colonel W. B. LEISHMAN, R.A.M.C., described the experiments in which he was engaged in connexion with the transmission of Tick Fever and the morphology of its cause, the spirochæta Duttoni. He had recently secured living ticks from Nyassaland, collected in the hut of a native in whose house cases had occurred. Through the bite of these ticks he had been able to infect a monkey in whose blood the spirochætæ appeared on the sixth day. Two relapses occurred and the animal died on the thirtieth day. Mice inoculated with the blood of the monkey had become infected. Experiments were in progress in connexion with the manner in which the disease was transmitted hereditarily from the tick to the second generation through the eggs. Lieutenant-Colonel Leishman had found in a few of the eggs certain small masses of chromatin, mostly included in the cytoplasm of the embryonal cells, which appeared to him to be parasitic in nature and which he thought might possibly prove, on further investigation, to represent a stage in the cycle of development of these spirochætæ; they appeared to him to resemble in some degree the small masses of chromatin which he had previously found in connexion with spirochætæ kept at a low temperature in citrated blood. Stained specimens and lantern slides of these bodies were demonstrated, as well as a series of the living ornithodorus moubata, illustrating all the stages of its life from the freshly passed egg to the mature adult. Cultural experiments in connexion with the spirochætæ were in progress and he had observed undoubted evidence of multiplication although subcultures had so far failed. Lieutenant-Colonel Leishman also gave a demonstration of a filaria which he had found in the blood of a monkey. It closely resembled the filaria Demarquayi and was probably identical with that which had been described by Philip Ross. It displayed no periodicity and the monkey was in good health.

Lieutenant-Colonel C. BIRT, R.A.M.C., exhibited Cultures of Typhoid Dejecta grown on Conradi's new medium. It consisted of agar 30 grammes, Liebig's extract 20 grammes, peptone 10 grammes, and water 1000 cubic centimetres. Normal soda or phosphoric acid solution was added until the reaction became + 30, Eyre's scale, phenol-phthalein indicator. After sterilising, 1 cubic centimetre of a 1 in 1000 aqueous solution of brilliant green crystals, extra pure, Höchst, obtainable from Messrs. Baker and Co., Holborn, and 1 cubic centimetre of a 1 per cent. solution of picric acid (Grübler) were added to 150 cubic centimetres of the agar. Sterilisation was not repeated, since the dyes were precipitated by autoclaving the agar. Conradi[2] had submitted to exhaustive tests 400 aniline compounds in order to discover a combination which might be least hurtful to the typhoid bacillus and most inhibitory to other organisms. The outcome of his researches had been that a mixture with the agar 1-15,000 picric acid and 1-150,000 brilliant green (which is tetra-ethyl diamido-triphenyl-carbinol-sulphate) gave the best result. Plates inoculated with typhoid dejecta were incubated at 37° C. for 20 hours. The typhoid colonies appeared as smooth-edged, round, and almost flat. They might be immediately identified by observing the agglutinative effect of an antityphoid serum on them. Conradi recommended that their behaviour under ox bile should be observed, since colonies of some saprophytes might resemble those of bacillus typhosus, but the saprophytes were clumped by the bile while the typhoid group remained unaffected. Malachite green media caused a loss of agglutinability of the typhoid bacillus which did not occur with brilliant green. Hence a bacteriological diagnosis might be made in a day. In 2850 examinations of fæces by that method Conradi had isolated the typhoid bacillus 325 and the paratyphoid 35 times, and from 2500 urine cultures he had recovered the typhoid bacillus on 105 and the paratyphoid on 26 occasions.

Lieutenant-Colonel BIRT pointed out that Leishman's staining fluid, in which methyl alcohol was the solvent, underwent deterioration after the lapse of a few weeks, sometimes so great that the nuclei of leucocytes remained colourless. In hot climates that change was more rapid; moreover, on account of the low boiling point of methyl alcohol, 66·6 C. there was great loss by evaporation, and it might be difficult to replenish the supply. By the addition of glycerine to Leishman's fluid its characteristic staining properties were retained indefinitely and evaporation hindered—a blood film was exhibited stained with Leishman's fluid to which an equal volume of glycerine had been added nearly two years previously. A satisfactory stable staining solution might also be prepared by making a saturated solution of Leishman's crystals in methylated spirit and adding an equal volume of glycerine. These fluids to which glycerine had been added were used in the same way as Giemsa's stain. Films must be fixed in alcohol and a few drops of the fluid mixed with about 3 cubic centimetres of water were applied to the slide for half an hour. There was an almost total absence of deposit in the stained preparation.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION.

Treatment of Toxæmias.—Action of Saline Purgatives.

A MEETING of this section took place on Nov. 3rd, Dr. T. E. BURTON BROWN, the President, being in the chair.

Professor W. E. DIXON read a paper on the Treatment of Toxæmias. He described experiments which he had recently carried out in order to investigate the action of drugs in toxæmic states. Animals, generally cats, were injected on one day with a large dose of toxin; on the next the heart beat and respiratory movements were recorded. In animals poisoned with cobra toxin the respiratory centre first failed. After it had failed, caffeine, hydrocyanic acid, cocaine, and all other drugs were practically without effect upon it. If the cobra toxin in these cases combined essentially with the nerve tissue an injection of cobra toxin in combination with nerve tissue should be without effect. This had been proved to be the case. A mixture of cobra toxin and cerebrin might be injected and the effect of the toxin on the respiratory centre was neutralised. A cat into which large doses of diphtheritic serum had been injected suffered from extreme splanchnic dilatation from vaso-motor paralysis. Drugs were without effect but the injection of a large amount of saline solution into the veins at once raised the blood pressure and improved the heart beat. In toxæmic states, such as that due to diphtheria, Professor Dixon laid stress upon the comparative inutility of drugs, while from saline intravenous infusion much good might be expected.—Dr. J. FAWCETT maintained that the practical difficulties in the way of performing intravenous infusion in young children dying from diphtheria were too great. He thought that it was untrue and dangerous to state that very large doses of strychnine might be injected into persons suffering from the toxæmia of diphtheria with impunity. He had many times seen twitching result from relatively small doses of strychnine; in such cases he agreed that digitalis was without effect. In old people suffering from malignant disease it was not uncommon to find post mortem the peritoneum full of pus and yet during life there had been no reaction. He thought that the animals mentioned by Professor Dixon were in a similar case.—Dr. J. GRAY DUNCANSON mentioned that he had treated a case of acute alcoholism with convulsions by intravenous injections with marked benefit.

Dr. A. F. HERTZ read a paper upon the Action of Saline Purgatives. Mr. F. Cook and Mr. E. G. Schlesinger, with Dr. Hertz, had carried out the work upon which it was based. From the experiments performed they concluded that saline purgatives acted only after absorption. Absorbed from the stomach and small intestine into the blood the purgative salt acted directly on the neuro-muscular mechanism of the colon, producing increase of motor and secretory activity. This was the view which had been advocated long ago by Aubert and MacCallum, but which had not been generally accepted by pharmacologists. The bowels of normal persons were opened about one and a half hours after taking a saline purge. As timed by auscultation of the cæcal sounds and by the use of x rays and bismuth the cæcum did not

[1] A report of the special meeting of this society which was held on Wednesday afternoon last will be found on p. 1467.

[2] Münchener Medizinische Wochenschrift, July 21st, 1908, p. 1523.

begin to fill until four hours after food was taken. It was impossible that the purgative salt should reach the colon in the shorter time. As shown by analysis, in a patient with a fistula of the ileum just above the cæcum the purgative salt did not travel faster than the bismuth salt. Analysis of the watery stools after purgation showed only a small amount of the purgative salt in excess of the normal—too little to have evoked the great excess of fluid by physical means alone. The greater part of the salt was excreted the next day, when the motions were solid.—Professor A. R. CUSHNY said that he was scarcely prepared to criticise Dr. Hertz's plausible view without looking at the figures more closely. One difficulty was that intravenous injection of purgative salts was quite without effect. Experimentalists could not quite accept the view that these purgatives acted by direct effect on the muscle.—Professor DIXON had many times tried the effect of intravenous injection of magnesium sulphate in man in small doses. Larger doses were toxic to the heart. The results were always negative. If the action depended on the absorption of a minute amount of the salt why was the result in direct relation to the dose given? He believed that it was easy to imagine that the watery constituents could pass from the alimentary canal in half an hour.—Dr. OTTO MAY, Dr. GRAY DUNCANSON, and Dr. H. C. CAMERON also spoke.—Dr. HERTZ, in reply, said that he could not explain why the salt did not act when injected intravenously into animals. Such experiments were not wanting in fallacy; the conditions were most abnormal. Their own experiments were purely physiological. As a matter of practice he did not think that a double dose of salts gave a double result, nor did he agree that it was necessary, if his view was accepted, to believe that small doses and large doses should have the same effect.

SECTION OF ANÆSTHETICS.

Chloroform Action.

A MEETING of this section was held on Nov. 6th, Mr. RICHARD GILL, the President, being in the chair.

The PRESIDENT gave an address upon the subject of Chloroform Action. He stated that chloroform acted upon the cerebral centres solely by reason of its chemical action on the blood. When chloroform was absorbed by the blood, it was oxidised by the nascent oxygen in the blood, and this loss of oxygen caused an increase of the frequency of the respiration, and indirectly all the other effects of chloroform narcosis. He denied that the drug could possibly act in more ways than one, and hence it could not act directly upon the cerebral centres. Relaxation of the muscles he ascribed not to a central paralysis but to an atony of the muscles themselves due to want of oxygen; in proof of which statement he mentioned that when oxygen was removed suddenly from muscle the muscle became rigid, but when the oxygen was removed slowly the muscle became atonic. The President considered that the dilatation of the pupil, which occurred in late chloroform narcosis, was due to this anoxæmic atony of the sphincter pupillæ muscle and not to paralysis of the third nerve. When chloroform was mixed with blood the latter became progressively darker until it was finally black. If this black blood be then shaken with oxygen it regained its former tint, hence the discolouration must be due to loss of oxygen.

In the subsequent discussion Dr. J. BLUMFELD and Dr. DUDLEY W. BUXTON objected to the President's reasoning, on the ground that his experiments were performed upon blood which had been removed from the body, and Dr. Buxton further pointed out that chloroform narcosis still occurred when chloroform was administered in conjunction with oxygen, which fact, he contended, was ample proof that the narcosis could not be due to loss of oxygen from the blood.

MEDICAL SOCIETY OF LONDON.

Exhibition of Cases.

A MEETING of this society was held on Nov. 9th, Mr. C. B. LOCKWOOD, the President, being in the chair.

Dr. ROSE BRADFORD sent a case of von Recklinghausen's Disease which was exhibited by Dr. A. SALUSBURY MACNALTY. The patient, a young woman, was admitted to University College Hospital under the care of Dr. Bradford in September, 1908, complaining of pain in the right arm with tingling and numbness in the fingers of the right hand, a swelling in the right axilla, and a lump on the upper part of the left thigh. In November, 1907, the patient first noticed that the little finger on the right hand was becoming numb and experienced tingling sensations both in this finger and in the other fingers of the right hand. Towards the end of the month she had a definite sensation of pain in these fingers; the pain had increased in severity and latterly had travelled up the arm. It was not constant, the patient herself describing it as a pain "like toothache" darting up the limb. In December, 1907, a lump was noticed by the patient in the right axilla. This lump had slowly but gradually increased in size. It had never itself been painful. About three months ago the patient observed a small lump on the upper part of the left lower limb; this was quite painless. She stated that she had been pigmented on the abdomen and back ever since she could remember. According to her mother the pigmentation was not present until the patient was two years old. Since the onset of the illness the patient had been getting thinner and had experienced a general feeling of weakness and lack of physical vigour. The patient stated that a brother of hers was similarly pigmented. Tumours of varying size were found to be present lying along the course of the nerves in different regions of the body. Generally speaking, the characteristics of these tumours were that they are hard, painless, smooth on the surface, moveable under the skin, and well defined. There was a large tumour in the right axilla, visible to inspection, of about the size of a small orange, and lying along the brachial plexus. The tumour was very hard, was most noticeable when the patient raised her right arm, and was painful when pressed upon. Over its lower anterior surface a cord-like band could be traced. In the neighbourhood of this large swelling smaller nodules could be palpated. Further along the course of the nerves in the forearm numerous seed-like bodies were present. The second large tumour was at the junction of the upper and middle thirds of the anterior surface of the left thigh. Its size was that of a large cherry, it had similar characteristics to those already described, and lay along the course of the middle cutaneous nerve. There were numerous smaller neuro-fibromata in the distribution of the intercostal nerves. These were well displayed when the patient sat up in bed and leaned forward. There were hard lumps scattered in both posterior triangles of the neck. It was questionable, however, whether these were true neuro-fibromata or merely glandular enlargements. There was general wasting of the muscles of the right forearm and hand. The wasting was most prominent in the interossei and in the thenar and hypothenar eminences. There was well-marked ulnar anæsthesia in the right forearm and hand. The patient had a distinct von Graefe's sign and the condition of the pupil suggested some involvement of the sympathetic. There was scattered pigmentation over the trunk and limbs. It was most marked, however, on the front of the abdomen and on the back, while there was a distinct patch in the immediate neighbourhood of the tumour on the left thigh. The pigmentation was pale brown in colour. It was chiefly punctiform in character but was varied with larger, irregular patches. The symptoms in the right upper limb were ascribed to pressure of the large tumour in the right axilla, and with a view to relieving them Mr. B. Pollard operated on Oct. 23rd. When the nerves of the brachial plexus were exposed they were found to be studded with multiple neuro-fibromata. The large visible tumour was discovered to be welded together of several smaller tumours. For the most part these fibromata involved the nerves in an inextricable meshwork, but it was found possible to shell out the largest constituent of the compound tumour.

Dr. F. J. POYNTON showed a case of Amaurotic Family Idiocy. The patient was aged two years and one month and was a child of Jewish parents. The child was born at full term and for the first seven months did very well and appeared to have been rather forward in development. At seven months the legs began to waste and the child probably went blind at this time, as he was noted to become very nervous and to start when touched or disturbed. During the last six months the legs were becoming powerless and stiff. Both parents were Jews (Russian and Polish) and there was no consanguinity between them. The child was pale and wasted; the face was expressionless. His limbs were very rigid, his arms were slightly flexed

and much pronated, and his legs were extended. He was conscious, had occasional fits of hysterical laughter, and his cry was very feeble. Very little movement took place, but the child jumped if startled. He was quite blind, the eyes wandering about aimlessly and showing some nystagmoid jerking on lateral deviation. Hearing was bad, but loud noises were perceived. Swallowing was performed with difficulty, sensation was much dulled but not abolished, and there was considerable muscular irritability. In regard to the eyes, the left fundus showed optic atrophy and the "cherry-red spot" surrounded by a white halo at the macula and the right fundus showed optic atrophy.

Mr. E. M. CORNER and Dr. T. SLATER JONES showed two cases of Cervical Rib. The first patient was a woman, aged 44 years. An x ray photograph showed the extra rib on the right side, attached to the transverse process of the seventh cervical vertebra. The second patient was a boy, six years old, and an x ray photograph showed a cervical rib on each side, the right being the longer. Mr. Corner stated that he was not satisfied that in either case the cervical ribs caused symptoms justifying surgical interference.—The PRESIDENT said that he had twice had occasion to remove cervical ribs for symptoms, and though the operations were difficult relief was effectual.

Dr. EDMUND CAUTLEY showed a case of Hæmoptysis of Doubtful Causation. The patient was a youth who had had several attacks of hæmoptysis. The physical signs were suggestive of old mischief at the right apex but the signs were indefinite, and there had never been any indication of active mischief while the boy had been under observation. The sputum had been examined on several occasions with negative results and Calmette's ophthalmic reaction was negative. Dr. L. G. GUTHRIE thought that the hæmoptysis might be caused by the ulceration of a calcareous gland, and Dr. CAUTLEY accepted the suggestion of the PRESIDENT that an x ray photograph should be taken.

Mr. T. H. KELLOCK showed a case of Talipes Equino-varus after a modified Phelps's operation. The patient was aged four years. On July 2nd of this year open operation was performed by laying open the astragalo-scaphoid joint as in Phelps's operation but with the important modification that no tendons, artery, or nerve was divided, and after the foot had been wrenched into position a flap of skin was dissected up from the outer side of the foot and remaining attached above was swung across and planted into the depth of the wound. The foot and leg were fixed in plaster of Paris which was renewed on two or three occasions and finally left off about three weeks ago after the child had been walking about with it on for some weeks.

Dr. A. F. VOELCKER showed a case of (?) Diffuse Glioma of the Spinal Cord. The patient, a girl aged two and three-quarter years, was admitted to the Hospital for Sick Children, Great Ormond-street. About ten weeks ago, the child having previously been in good health, it was noticed that when taken out of bed one morning she was unable to walk properly and fell backwards into a sitting position after taking a few steps. On stooping she was unable to regain the upright position. There was double incontinence. Seven weeks later the arms became weak, causing her difficulty in feeding. There was much irritability but, it was thought, no pain. The condition of the legs showed no change. Three days later the child was admitted to the hospital. On admission she was found to be very irritable but intelligent and well nourished; she kicked well but would not attempt to stand. There was definite weakness of the right deltoid and very slight of the left. The cranial nerves, optic discs, and trunk muscles were normal and sensation was unimpaired. The arm-jerks were not obtained, the knee-jerks were absent, and the plantar responses were indefinite. Since admission three weeks ago there had been a definite slow increase in the muscular weakness. The arms were now very weak, only movements of the fingers and slight movements at the wrists remaining. There was some weakness of the spinal muscles, so that curvature of the back was occasionally present with the convexity to the right. The legs were weaker and the limbs more wasted, and within the last few days definite right facial weakness of the peripheral type had developed.

Dr. GUTHRIE and Mr. INGLIS TAYLOR showed a case of Graves's Disease with Unilateral Symptoms.

Dr. W. ESSEX WYNTER: A case of Banti's Disease (Splenic Anæmia) and one of Paraplegia and Tumour of the Neck.

Dr. F. PARKES WEBER: A case of Hæmophilia with Fibrous Thickening in the Appendix Region.

Mr. H. A. T. FAIRBANK: A case of Coxa Valga.

Dr. H. TYRRELL GRAY: A case of Œdema of the Leg.

Mr. G. E. WAUGH: A case of Dislocation of the Shoulder (Sub-spinous) from Birth in a child six months old.

LIVERPOOL MEDICAL INSTITUTION.

Exhibition of Cases.—Cleft Palate.—Meningitis in Children.

A MEETING of this society was held on Nov. 5th, Mr. F. C. LARKIN, Vice-President, being in the chair.

Mr. K. W. MONSARRAT showed a case of Pneumococcic Arthritis affecting the Right Shoulder, Humerus, and Elbow, following Pneumonia and Empyema. He also showed a patient with Squamous Carcinoma arising in the Scar of a Burn.

Mr. ROBERT W. MURRAY read a note on the following question: "At What Age should Cleft Palate be Closed?" He said that all surgeons were agreed that the cleft should be closed early in life but opinions differed as to whether it was better to operate during early infancy or early childhood. Mr. Murray's practice in cases of complete cleft of the lip and palate is to operate on the lip about the fourth week of life and to delay operating upon the palate until about the second year. He brought forward several patients upon whom he had operated to determine their powers of articulation. The results obtained were very satisfactory.—Mr. R. C. DUN said that he preferred to operate between the ages of 18 months and two years. He emphasised the importance of skilled training in articulation after the palate was closed. He considered that the operations devised by Brophy and Arbuthnot Lane involved grave risk to life.—The discussion was also joined in by Mr. LARKIN and Mr. D. DOUGLAS-CRAWFORD.

Dr. N. PERCY MARSH and Dr. O. T. WILLIAMS communicated a paper on Meningitis in Children, with especial reference to the aid afforded by lumbar puncture in diagnosis, prognosis, and treatment. They emphasised the point that lumbar puncture was the only certain means of diagnosing meningitis from other conditions, particularly meningismus. Illustrative cases of periodical vomiting and uræmia with meningismus with the findings in the cerebro-spinal fluid were described. Eight cases of tuberculous meningitis with the cytology of the cerebro-spinal fluid were described, and two cases closely simulating this condition, which ended in recovery, and with the same cytological and chemical findings in the fluid were commented upon. Tubercle bacilli in the coagulum obtained from cases of tuberculous meningitis were demonstrated. The clinical and bacteriological aspects of eight cases of posterior basic meningitis were discussed, of which three recovered and five died. Two cases of cerebro-spinal meningitis were related in detail, both of which recovered. In one of these a vaccine was used. Lastly, five cases of purulent pneumococcic meningitis were described. Dr. Marsh and Dr. Williams deduced conclusions as to the extreme value of lumbar puncture from a diagnostic point of view, mentioned its value in some of the cases in reducing intracranial pressure, and demonstrated the importance of the procedure to obtain cultures for vaccine-therapy.—Dr. H. ARMSTRONG doubted the possibility of a cure in tuberculous meningitis. He thought that in cases which are said to have recovered the symptoms might be due to a toxin of a tuberculous focus elsewhere. He considered tuberculous meningitis to be a secondary condition in a general infection.—Dr. A. G. GULLAN regarded lumbar puncture as not only useful in diagnosis but considered that in association with the use of morphine it acted beneficially. He took a hopeful view of the condition and considered that not a few cases recovered.—Dr. R. J. M. BUCHANAN referred to the aid in diagnosis afforded by Calmette's reaction in doubtful cases, and pointed out that in his experience the reaction was always very pronounced in tuberculous meningitis as compared to other tuberculous conditions. He had had success by treatment with tuberculin and lumbar puncture combined. He advised that not more than 20 cubic centimetres of fluid should be drawn off at a time but that it could be repeated as occasion called for it; larger amounts were likely

to determine an attack of convulsions.—The paper was also discussed by Dr. N. RAW, Dr. W. B. WARRINGTON, Dr. J. HILL ABRAM and Sir JAMES BARR.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.—Leptothrix Infections.—Pancreatic Disease.—Election of Officers.

THE first meeting of this society was held on Nov. 4th, Dr. JAMES RITCHIE, the President, being in the chair.

Dr. BYROM BRAMWELL exhibited an unusually interesting case of Tabes in a young unmarried man, aged 30 years. He had contracted syphilis when 23 years of age; ten months after the primary sore the first symptoms of tabes showed themselves as gastric crises and these had persisted ever since. A year later dimness of vision and lightning pains were complained of and when 26 years of age bladder and rectal disturbances appeared. His vision became entirely lost 18 months ago and during this period he had become profoundly ataxic. Charcot's joint disease was well marked in the right knee and to a lesser extent in the left knee. There had been no amelioration in the condition, the gastric crises and lightning pains being still as severe as ever. On attempting to walk there was great incoördination of movement, the legs being thrown violently up and the patient appeared simply to be kicking the air. The unusually early development of tabes was the remarkable feature.

Dr. ROBERT ROBERTSON exhibited a woman who had contracted syphilis from her husband 14 years ago. No treatment of any kind had been of avail and she had been bedridden for the past five years. The whole body was covered with ulcers and the face and head were markedly disfigured. Treatment by soamin was begun in September, and after the first intramuscular injection the ulcers commenced to heal and she was soon able to get out of bed. The dose for injection was six grains.

Mr. C. W. CATHCART exhibited: 1. A man, the anterior two-thirds of whose tongue he had excised five years previously on account of Carcinoma. It was often said that this organ when affected could not be cured but this case already exhibited a long period of quiescence. The patient had suffered from leucoplakia for six years previously to his operation. The lymphatic glands had been thoroughly excised at the time of operation. In speaking his gutturals were much more affected than his dentals. The patient had devised an alteration in the shape of his dental plate to facilitate mastication as the food collected between his palate and the shortened tongue. 2. A woman after drainage of the gall-bladder for Subacute Pancreatitis with Fat Necrosis. The patient had suffered from attacks of gall-stones for several years. Each year she had two or three such seizures. These always passed off except the last, which was succeeded by a constant burning pain in the epigastrium, along with tenderness and resistance. The abdomen was opened and a mass of omentum studded over with white masses was exposed. The latter were areas of fat necrosis. The gall-bladder was opened and stitched to the wound. 20 small calculi escaped from the wound a few days later. The pancreatic reaction was present in the urine before but disappeared after the operation. The woman was now quite well.

Dr. CHALMERS WATSON exhibited: 1. A woman who had suffered from bilious attacks during the whole of her life. During the 18 months prior to her admission to the wards of Professor J. Chiene she had suffered from eight or ten attacks of abdominal pain with vomiting of yellowish-green fluid, and there had been a slightly progressive general asthenia. The urine gave the pancreatic reaction and also contained a small amount of sugar. A definite tumour could be felt in the region of the pancreas. The operation revealed an indurated pancreas with points of fat necrosis. The woman was now comparatively well but experienced an uncomfortable sickly feeling at the upper part of the abdomen and suffered from general asthenia. 2. A man who was admitted to the Royal Infirmary suffering from general weakness with tightness at the upper part of the abdomen. He said that he had been treated for diabetes and had been rapidly cured. He experienced pain on deep pressure over the head of the pancreas. The urine contained no sugar but gave the pancreatic reaction. The patient is 1 stone lighter than he used to weigh.

Mr. CATHCART exhibited Appliances for Simplifying the Counting of Swabs in Abdominal Operations. These allowed one to know at any stage of the operation how many had been used or were still in use.

Two papers were then read by Mr. E. W. SCOTT CARMICHAEL, who took for his subject Leptothrix Infections, a case of pyæmia with meningitis and notes of two similar cases, and by Dr. CHALMERS WATSON, who treated of the Diagnosis and Treatment of Pancreatic Disease.[1]

The society then proceeded to elect the following office-bearers for the ensuing session:—President: Dr. J. Ritchie. Vice-Presidents: Dr. George Hunter, Dr. C. W. MacGillivray, and Dr. W. Allan Jamieson. Councillors: Dr. Robert Thin, Dr. Chalmers Watson, Dr. G. M. Robertson, Mr. A. A. Scot Skirving, Dr. J. O. Affleck, Mr. George Berry, Dr. G. Lovell Gulland, and Dr. C. B. Ker. Treasurer: Mr. J. W. Dowden. Secretaries: Mr. David Wallace and Dr. F. D. Boyd. Editor of Transactions: Dr. William Craig.

NORTHERN AND MIDLAND DIVISION OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.—A meeting of this division was held at the East Riding Asylum, Beverley, on Oct. 22nd, Dr. M. A. Archdale being in the chair.—Dr. Archdale read a paper on Hospital (i.e., Asylum) Treatment of the Acute Insane. He first reminded the meeting of certain etiological factors in the causation of acute insanity. From these he deduced the following principles or aims of treatment: to afford rest as complete as possible, to eradicate parasites and to assist excretion, and finally, during the stage of convalescence to exercise all faculties in a gradual manner. He then went on to show the details of methods by which such principles might be carried out in practice. This he did by remarking on the following subjects: confinement to bed in the fresh air, isolation and observation, psychic treatment or suggestion-therapeutics, sepsis in the mouth and other parts, disturbed metabolism, antiseptics and sanitation, regulation of the bowels, water-drinking and saline injections, milk and simple diet, observations of urine and weight, hypnotics and sedatives, and exercise.—Dr. T. W. McDowall remarked that the paper traversed the whole field of treatment and offered many interesting points for discussion. He was gratified to see that asylum medical officers were taking so much interest in the treatment of the acute insanities.—Dr. C. L. Hopkins, Dr. C. K. Hitchcock, Dr. J. W. Geddes, and Dr. B. Pierce joined in the discussion, Dr. Hitchcock emphasising the fact that the elimination of toxins and the use of rest were most beneficial.—Dr. Archdale then replied to various questions which the paper had suggested.—Dr. Colin F. F. McDowall read a paper on Blood Changes as a Means of Prognosis in the Acute Insanities. Leucocytosis, he said, was a phenomenon which most authorities agreed was the reaction of the organism against an invading toxin. By an observance of the character of the leucocytosis and the presence or absence of an eosinophilia, together with the advent of dementia, a prognosis could be arrived at. Excitement with confusion gave more uniform results than did depression with excitement. The observations made regarding the latter disease did not coincide entirely with those of other workers upon this subject. Chloral and morphine as depressants were not advocated in cases in which the leucocyte count was low. A regular moderate leucocytosis was regarded as the most hopeful sign found in the blood, especially if accompanied by an eosinophilia. Whilst there was leucocytosis there was hope. A number of coloured drawings were shown illustrating blood in the diseases under discussion.—Dr. J. Merson and Dr. Archdale made some remarks on the paper and Dr. McDowall replied.—Dr. Simpson read a paper entitled "The Prognosis in the More Acute Forms of Mental Disorder." He pointed out the difficulties there were in treating of prognosis—arising from classification, from the peculiar individual nature of insanity, and from the meaning attached to the term "recovery." He showed how the various factors of sex, age, heredity, the form of mental disorder, the duration of the disorder, and bodily diseases

[1] We hope to publish these at some length with the subsequent discussions in a future issue.

affected the prognosis; that the prognosis was more favourable in males than in females in the ratio of 1·07 to 1; that it was more favourable in melancholia than in mania and very unfavourable in delusional and epileptic insanity. He commented upon the public ideas and prejudices against asylums and emphasised the necessity for early treatment.—Dr. Archdale exhibited and explained the use of Oliver's Hæmomanometer for estimating blood pressure.—A very interesting and instructive meeting was then brought to a close by a hearty vote of thanks to Dr. Archdale for his kind hospitality.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Nov. 6th, Dr. Alexander Morison, the President, being in the chair.—Dr. W. Langdon Brown read a paper on Calcium Salts in Therapeutics. He said that calcium was the one metal of the action of which in the body we had some definite knowledge and the results it had yielded in therapeutics had been of striking interest. This was largely due to the ingenious experiments of Sir A. E. Wright who had taken advantage of the ease with which it could be added to or extracted from the diet. He had observed the rate of coagulation by means of a capillary tube into which the blood was drawn and the time required for its clotting was noted. In this way the effect of therapeutic measures could be controlled by a simple test. If coagulation was too quick the blood could be decalcified by giving citrate of sodium; if too slow calcium salts could be added. Wright asserted that every adult patient who was placed upon a dietary of milk was thereby brought into a condition which predisposed to thrombosis in consequence of the large intake of calcium salts. He believed that this fact accounted for the frequency of thrombosis as a sequel of typhoid fever. F. J. Smith also was of opinion that the rarity with which thrombosis occurred in his series of cases of typhoid fever was due to his allowing them a more liberal and not exclusively milk diet. When once clotting had occurred in a vein the question arose whether it was better to give citrates with the view of aiding resolution, or calcium salts to assist in getting the clot as firm as possible and thus diminishing the risk of embolism. Practical experience was in favour of decalcification as soon as thrombosis took place, for when clotting began it might spread unless the coagulability of the blood was diminished. Chilblains, "angio-neurotic" œdema, and physiological albuminuria Wright considered to be, like urticaria, due to a lowered coagulability of the blood, which allowed of transudation of plasma from the vessels into the lymph spaces—a "serous hæmorrhage," as he called it. The principle was the same in all these conditions; the blood must be replenished with those salts which rendered the plasma more coagulable and viscid. Calcium salts were used with the intention of promoting clotting in the sac of an aneurysm, in purpura, hæmophilia, intestinal hæmorrhage, and as a precautionary measure against bleeding during operations.—Mr. W. Ernest Miles showed a specimen of Adeno-carcinoma of the Rectum removed by abdomino-perineal excision. In this operation the whole of the pelvic colon below the portion necessary for the making of an inguinal colotomy was removed, together with the lymphatic glands.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—The opening meeting of the session was held on Oct. 20th.—Dr. T. J. Wood, the President, delivered an able address on the Developments that have Occurred in Surgical Practice during the Last 20 Years. After thanking the members for having elected him to the position of President, Dr. Wood spoke of the increasing confidence which is placed in surgery by the general public at the present day and of the great advance in the scientific equipment of the modern general practitioner, a remark to which he applied this qualification: "I would like to point out that the only place in which the routine of practice can be learnt is in the surgery of the general practitioner and also that the opportunity of doing work as residents in public institutions and thereby acquiring a living knowledge of their profession is strangely neglected by many of the newly qualified men of the present day." He then entered a plea for simplicity and efficiency in the aseptic technique of surgery and spoke of the improvements in anæsthetic administration, but urged the fuller instruction of students in this subject. He pronounced a qualified commendation of spinal anæsthesia and entered a plea for a greater regard of the time factor in operating. He then referred to certain details in modern technique, including the disuse of the drainage-tube in clean wounds, the means for preventing shock in operation, and the methods of hastening convalescence after abdominal section, such as the avoidance of the continuous recumbent position and the meddlesome administration of morphine. The early mobilisation and massage of joints and open operation in the treatment of fractures also came under review, Dr. Wood advocating the former method and deprecating the undue frequency of the latter, useful as it was in suitable cases. He touched also on skiagraphy for diagnosis and treatment, on Bier's method of passive congestion, and spoke of the respective value of serum and vaccine therapy in relation to surgery. He then mentioned the various new instruments of diagnostic value, and, turning to cancer, pronounced early and free excision to be its only cure. Dr. Wood concluded by referring briefly to the developments in operative work, touching on the brain, spinal cord, breast operations, thoracic surgery, abdominal surgery, renal, bladder, rectal and bone surgery.—Specimens were shown by Dr. A. Little, Dr. R. A. R. Lankester, Dr. C. F. M. Althorp, Dr. H. J. Campbell, and Mr. W. H. Horrocks, and Mr. Horrocks read a commentary upon Wound Drainage in the Early Eighteenth Century.

Reviews and Notices of Books.

Treatment of Internal Diseases for Physicians and Students. By Dr. NORBERT ORTNER of the University of Vienna. Edited by NATHANIEL BOWDITCH POTTER, M.D., Visiting Physician to the New York City Hospital; Instructor in Medicine, Columbia University. Translated by FREDERIC H. BARTLETT, M.D., from the fourth German edition. London and Philadelphia: J. B. Lippincott Company. 1908. Pp. 658. Price 21*s.* net.

THE author states in his preface that in writing this work he has endeavoured especially: (1) to explain briefly but clearly the *rationale* and the technique of every variety of therapeutic measure which may be found useful at the bedside; (2) to give explicit directions in regard to the choice of mineral waters and baths suited to each individual condition, with especial emphasis upon the method of carrying out such treatment in the patient's home; and (3) to furnish not merely lists of prescriptions but, whenever possible, a brief account of the action of each drug, with the hope of making medication less an affair of the memory and more one of the reason. That Dr. Ortner has succeeded in his efforts is proved by the fact that four editions have been published in nine years. As stated on the title page, the present translation is from the fourth German edition.

The translation has been ably edited by Dr. N. B. Potter who has not only rewritten the whole or portions of some of the sections but has added copious notes to suggest differences in opinion and to contribute further therapeutic resources from authoritative American and English clinicians. Such notes are scattered in large numbers through the book and considerably add to the interest of the work, since Dr. Potter frequently differs from the views expressed by the author. The prescriptions have been altered to conform to the American Pharmacopœia and the equivalents in the English scale of measures have been added to the metric quantities. All temperatures have been rendered into the Fahrenheit scale.

The most noticeable difference between this work on therapeutics and English ones on the same subject is the stress which is laid on therapeutic methods which do not involve the use of drugs as usually administered. Mechanical, dietetic, climatic, and hydrotherapeutic methods are fully discussed and their indications and contra-indications are duly pointed out. A large amount of information on these subjects will be found scattered through the work and many

forms of treatment are suggested which have not been extensively adopted in this country.

The remarks on diet in reference to treatment are particularly worthy of note. Especially is this the case in the section on "Therapy of Diseases of Metabolism." The diet to be recommended in diabetes mellitus is considered at length. Dr. Ortner describes three grades of diabetes: light cases, in which a reduction of the carbohydrates quickly produces a total disappearance of sugar from the urine; severe cases, in which the tolerance of carbohydrate is very poor, sugar being formed even from the proteids in the food; and between these two extremes may be found all transitional grades, usually classified under the term "moderately severe cases." A brief description is given of the clinical characteristics of the three grades and then an elaborate discussion of the diet suitable for each form is entered upon. The dietetic treatment of the mild type of diabetes mellitus deserves attention. Individuals who are found to be suffering from this condition progress more satisfactorily when a certain amount of carbohydrates is allowed and Dr. Ortner lays down clearly and precisely the diet which should be prescribed. Symptomatic treatment by means of drugs receives much attention throughout the book. A very large number of prescriptions are suggested and will be found valuable for use when the remedies usually prescribed fail to produce the effect desired.

Dr. Bartlett has performed the task of translation in a praiseworthy manner and has transformed the German text into excellent idiomatic English. We believe that English readers will find this book a valuable work of reference.

Diseases of the Rectum, Anus, and Sigmoid Colon. By F. SWINFORD EDWARDS, F.R.C.S. Eng., Senior Surgeon to St. Mark's Hospital for Fistula and Other Diseases of the Rectum; Surgeon to the West London Hospital; and Senior Surgeon to St. Peter's Hospital for Urinary Diseases. Illustrated. London: J. and A. Churchill. 1908. Price 10*s.* 6*d.* net.

SIXTEEN years have elapsed since the appearance of the second edition of a work on diseases of the rectum and anus by the late Sir Alfred Cooper and Mr. Swinford Edwards. The present work is in one way the third edition of that book but it has been greatly augmented and in part rewritten, so that for all intents and purposes it is a new work.

The description of the rectum is clear and it accords with that usually received at the present time; the rectum is now considered to begin at the middle of the third sacral vertebra and not at the brim of the pelvis. The distinction is of no practical importance but it has upset the older statistics in which growths and lesions of the rectum included some which would now be included in the sigmoid flexure. Mr. Edwards agrees with the anatomical description of the sigmoid flexure that it enters the pelvis from the right side. This is the most usual arrangement. He speaks highly of Kelly's proctoscope and of the sigmoidoscope, and indeed all surgeons who have employed these instruments much value them highly. Hæmorrhoids are the commonest disease of the rectum and the operation recommended here is Salmon's operation which consists in making an incision at the outer edge of the pile and then ligating the pile with stout silk. A rubber tube is inserted in the rectum to permit the passage of flatus. In speaking of the operation of iliac colotomy the author says: "The upper or proximal end is carefully recognised from the lower," but nothing is said as to how this is to be done, and, indeed, a little further on it is stated that "in more than one of my cases fæces passed through the lower opening, a proof that the bowel was twisted." Any method of infallibly diagnosing the upper from the lower end of the sigmoid flexure would be of great value.

The book is very practical and Mr. Edwards has no hesitation in expressing his opinions on the various operations described, and this is of especial value in a work written by a surgeon with great experience in this department of surgery.

A Manual of the Practice of Medicine, prepared especially for Students. By A. A. STEVENS, A.M., M.D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania. Eighth edition, revised, illustrated. London and Philadelphia: W. B. Saunders Co. 1907. Pp. 558. Price 12*s.* 6*d.*

THE fact that this work has reached the eighth edition is sufficient proof that the efforts of the author have been fully appreciated. The manual is only intended to serve as an "outline of practice of medicine," which should be enlarged upon by diligent attendance upon lectures and critical observation at the bedside. As such it may be useful but we cannot recommend students to adopt it in preference to the more extended text-books on medicine which are usually used in this country. The clinical descriptions are accurate and brief and many useful hints are given in regard to treatment, but the paragraphs devoted to etiology, and especially those dealing with pathology, are too superficial for students to rely on for the purposes of examination. Doubtless, however, it is the author's intention that morbid anatomy should be studied in the special works devoted to that subject.

The eighth edition has been brought fully up to date. The text has been thoroughly revised and much new material has been introduced, and many articles, especially in the section dealing with diseases of the nervous system, have been rewritten. The work is very complete in the variety of the diseases which are discussed and attention may be directed to the sections on diseases of the kidneys and diseases of the skin and its appendages, where certain conditions are described which are not usually referred to in text-books on clinical medicine.

Practitioners may find the manual useful as a work of reference in which the desired information will be found couched in concise but clear and accurate language.

LIBRARY TABLE.

Diseases of the Skin. By A. H. OHMANN-DUMESNIL, A.M., M.E., M.D., Ph.D., formerly Professor of Dermatology and Syphilology in the St. Louis College for Medical Practitioners, &c. Third edition, thoroughly revised and enlarged, with 140 original illustrations. St. Louis: C. V. Mosby Medical Book and Publishing Company. 1908. Pp. 606. Price $4.—There is a fault from which many works on dermatology suffer which renders them unsuitable for the ordinary practitioner: they are too complete, too thorough, and are fitted rather for the specialist than for those who wish to have only a working knowledge of the subject. Dr. Ohmann-Dumesnil's book is written especially for those in general practice who wish to know something of the diseases of the skin but who do not possess the time to investigate dermatology thoroughly. It is well suited for the purpose for which the author designed it. Most of the illustrations are excellent but some, such as that of molluscum contagiosum, show very little.

International Clinics. A Quarterly of Illustrated Clinical Lectures and especially Prepared Original Articles. Edited by W. T. LONGCOPE, M.D., Philadelphia, U.S.A. Vol. II. Eighteenth Series, 1908. London and Philadelphia: J. B. Lippincott Company. 1908. Pp. 304.—Amongst the numerous contributions to this volume is an article by Dr. H. Hallopeau (Paris) on the Treatment of Syphilis by Atoxyl. From his investigations this observer has arrived

at the conclusion that atoxyl has a powerful effect on the infectious agent of syphilis and that it may now be said that this preparation affords a third specific agent against the disease, equal if not superior to its predecessors. Forms of associated secondary infection, such as those that give rise to vegetating condylomata and some kinds of suppuration, appear, however, to be refractory to it. The manner in which the treatment should be carried out is discussed and it is shown that considerable care is required to achieve the best results, for intolerance of the drug is not uncommon. In the section on medicine Dr. James J. Walsh (New York) relates "Some Curiosities of Lead Poisoning." He comments on instances of "latent" or "insidious lead poisoning" and states that the effects of lead are much more important, more extensive, and more lasting than was formerly thought to be the case. He is of opinion that "lead poisoning is no mere incident, easily to be gotten over, but usually means a serious disturbance, often permanent, of the most important tissues of the body." There are many articles in this volume of considerable interest and among them are the following: Serum Treatment of Bacillary Dysentery, by Dr. Vaillard and Dr. Dopter (Paris); Perinephritic Abscess in Children, by Dr. C. C. Cumsten (Boston); Gonorrhœa and Pregnancy, by Dr. E. B. Young (Boston); the After-treatment of Cataract Extraction, by Dr. W. O. Moore (New York); Rhinoscleroma, by Dr. S. Gottheil (New York); and Recent Researches into the Pathology of Malignant Disease, by Dr. C. E. Simon (Maryland).

Tamil Self-taught (in Roman Characters), with English Phonetic Pronunciation. By Don M. de ZILVA WICKREMASINGHE, Epigraphist to the Ceylon Government; Librarian and Assistant Keeper of the Indian Institute, Oxford; Author of "Tamil Grammar Self-taught." London: E. Marlborough and Co. 1907. Pp. 96. Price 2*s.* 6*d.*—Tamil is a language of great importance in Southern India and it is, moreover, of great interest because it is the best example of the Dravidian group of languages. A knowledge of it is of value, if not quite a necessity, to traders and travellers in Southern India and for these this little book is intended. It is an attempt, successful we think, to represent the sounds of Tamil by means of Roman characters; a large collection of common words is given and many useful phrases and sentences are supplied. The book is just what is needed by those who wish for a colloquial knowledge of Tamil.

Egyptian Self-taught (Arabic). By Captain C. A. THIMM. Third edition. Revised and enlarged by Major R. A. MARRIOTT, D.S.O. London: E. Marlborough and Co. 1907. Pp. 80. Price, wrapper, 2*s.*; cloth, 2*s.* 6*d.*—The colloquial language of Egypt is a somewhat debased form of Arabic but a knowledge of it is very convenient to visitors and to those Englishmen who hold official posts in Egypt. This book should serve as a useful introduction to the spoken language and it should be sufficient to make the learner understood. The system of transliteration is simple and effective and the learner is not troubled with much of the Arabic character, though the alphabet is given.

The Calendar of the University of London for the Year 1908–09. 8vo. Pp. 990. Price 5*s.* net, post free.—*Regulations and Courses for Internal Students, September, 1908.* 8vo. Pp. 762 + 56 + xxiv. Price 1*s.* net; postage 5*d.*—*Regulations for External Students, September, 1908.* 8vo. Pp. xxii. + 506 + 56. Price 1*s.* net; postage 4*d.*—We have received these annual official publications of the University of London. The plan of issuing three volumes has been again adopted and considering the amount of matter which they contain they are published at very moderate prices. It is to be noted that no examination papers are reprinted in these handbooks.

Naval Sketches. By SALVATOR VALDA and HENRY HUNT, R.N. 1908. London: Simpkin, Marshall, Hamilton, Kent, and Co. Price 3*s.* 6*d.*—This is a book of sketches in illustration of "the way they have in the navy"; the pictures practically tell their own stories and but little letterpress is required. The collaborators have nothing whatever in common, Mr. Valda's work being deliberately comic and Staff-Surgeon Hunt's being illustrative of the serious side of naval life and naval routine, but the result is a very interesting picture book. As a good example of Mr. Valda's humour we may mention his first picture, which can be more or less imagined from the legend below it—"Two sailors fall overboard—they cannot swim—they climb on to a mine which has broken adrift—there's a ship heading for them—if they hang on they'll blow up! if they drop off they'll drown!—What would you do?" The terror of the situation would make it a painful subject were it not that Mr. Valda's brush turns the whole thing into a manifest absurdity. Of Staff-Surgeon Hunt's contributions we prefer a cleverly coloured and strongly designed drawing entitled "In the Stokehold," and showing a stoker working hard to keep the furnaces going. He seems to be discharging his duty in the very jaws of hell but a word in the preface from Staff-Surgeon Hunt is very reassuring in this connexion. He informs us that the heat in the stokehold is now not nearly so great as is generally supposed owing to the excellent system of fan ventilation installed in modern ships. We congratulate Staff-Surgeon Hunt on his artistic talent, while he has been thoroughly fortunate in his partner to the venture.

JOURNALS AND MAGAZINES.

The Bio-Chemical Journal. Edited by BENJAMIN MOORE, M.A., D.Sc., and EDWARD WHITLEY, M.A. Vol. III., No. 9, Oct. 21st, 1908. Johnston Laboratory, University of Liverpool. Price 15*s.* per volume.—The following articles are contained in this part:—1. The Micro-Chemical Changes occurring in Appendicitis, with a Note on the Incidence of the Disease in Various Countries, by Owen T. Williams, M.D., B.Sc. Lond., honorary assistant physician, Hospital for Consumption; demonstrator of bio-chemistry, University of Liverpool. 2. The Action of Pilocarpin on the Heart (preliminary communication), by James M. McQueen, M.A., B.Sc., senior assistant in physiology, University of Aberdeen. 3. The Action of Drugs on Mammalian Uterus, by Harold J. Fardon, M.A., M.D. Cantab., from the Pharmacological Laboratory, Cambridge. These experiments show that the reaction of the uterus to drugs is compatible with its nature as a plain muscular organ supplied by the sympathetic nerve. Several tracings are given showing the action of ergotin, cocaine, nicotine, quinine, and other drugs. 4. The Effect of Acid and Alkali on the Osmotic Pressure of Serum Proteins, by L. Adamson, M.D. Liverp., University of Liverpool, and Herbert E. Roaf, M.D., lecturer on physiology in Toronto. 5. Urobilin Excretion in Diseased Condition, by N. F. Surveyor, M.A., M.D. Bombay, professor of bacteriology, Grant Medical College, Bombay.

Journal of Laryngology, Rhinology, and Otology. November, 1908. London: Adlard and Son. Price 2*s.*—The November number contains a long abstract of an address by Dr. J. Macintyre under the guise of an editorial. Then as original articles we find a paper on Some Observations on the Results of the Application of Bárány's Tests to "Deaf Mutes" by A. R. Tweedie, F.R.C.S. Eng., and a paper by Norman H. Pike, M.B., B.S. Lond., entitled, "An Examination into the Condition of the Vestibular Apparatus in a series of cases of Deafness of Non-suppurative Origin." These two papers taken in conjunction have the extreme

advantage of dovetailing together and forming a large mass of evidence. As Dr. Pike details the employment of the tests the papers should receive the attention which they deserve. A third article is a paper read by H. Tilley, M.D. Lond., F.R.C.S. Eng., at the meeting of the British Medical Association at Sheffield, on Antral Disease in Relation to Special and General Surgery; and a fourth article is by Mr. A. S. Underwood, L.D.S., on Recent Researches on the Anatomical and Pathological Conditions of the Maxillary Sinus in Relation to the Teeth. Both of these papers are worthy of attention as good examples of the rhinological and odontological views of the present day on antral disease. We are pleased to notice a tendency on the part of this journal to return to what it was nine or ten years ago.

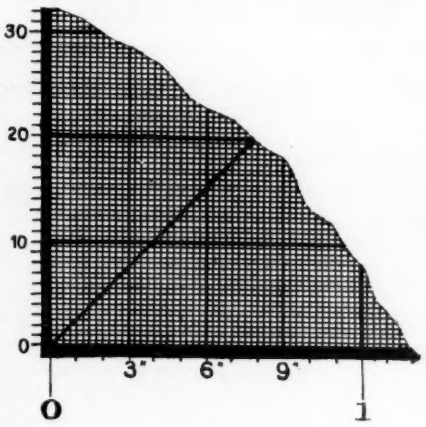
The Dublin Journal of Medical Science.—The October issue of this magazine is an "Educational Number" and contains a section dealing with medical examinations and degrees in Ireland. The concluding instalment of Mr. E. Hastings Tweedy's report of the Rotunda Hospital is also published in it and a detailed analysis of meteorological records by Sir John W. Moore, tending to show that there has taken place no such change in the climate of the British Isles as is sometimes supposed to have occurred by those who are impressed by apparent abnormalities in the seasons.

The Birmingham Medical Review.—The September issue of this journal is devoted to children's ailments. Mr. Charles A. Leedham-Green writes on the diagnosis of urinary tuberculosis in children, noting the frequency of this seat of infection and its liability to be confused with other causes of albuminuria, unless search is made for tubercle bacilli in the urine. An injection of old tuberculin may cause a transient appearance of pus in the urine and help to clear up the diagnosis. Dr. W. A. Potts deals with types of feeble-minded children and Dr. Walter R. Jordan with some factors in the causation of infantile neuroses. Mr. Frank Barnes contributes a short paper on the treatment of congenital Dislocation of the hip and Dr. J. Douglas Stanley one on the prognosis of heart disease in children, both authors taking a favourable view of the prospects of their little patients if they are seen early and treated efficiently.

New Inventions.

A "VERSIMETRIC" CHART.

THE necessity for a ready method of converting metric into English measure arose in connexion with the new medical inspection of school children, but it had long been recognised in dispensaries. Mr. T. W. Abbott has accordingly at our suggestion designed for the purpose a series of charts, which are now published by the Medical Agency, Watergate House, Adelphi, W.C. The principle of all the charts is the same and is simple. A square is ruled; the base is marked off in English measure, for example in inches, and the sides in metric measure, in half centimetres. Vertical and horizontal lines are ruled across the square to correspond respectively to the English and metric subdivisions. A diagonal line between opposite corners of the square indicates the points of coincidence of the two scales. To convert centimetres into English linear measure, or *vice versâ*, the requisite point is found along the side or base of the square. The eye is carried along the straight line to the diagonal, and thence, at right angles, to a figure at the base or side of the square. This figure is the equivalent which it is desired to find. The illustration shows a portion of the chart for converting feet and inches (on the horizontal side) into centimetres (on the vertical side). Similar charts are issued for the conversion of inches from 27 to 69 into centimetres and of pounds from 28 to 168 into kilogrammes for anthropometrical purposes and especially for the use of school medical officers in compiling the results of their inspections of school children. Other charts are published for the conversion of grains into milligrammes and into decigrammes, of ounces into grammes, of fluid ounces and minims respectively into cubic centimetres, and of degrees Fahrenheit into degrees Centigrade. Their utility in laboratories and



dispensaries is obvious. The charts are printed on Japanese paper, 15 inches by 18 inches, mounted on a wooden roller at the bottom and metal-bound at the top, so as to be convenient for hanging up.

F. E. FREMANTLE, M.B. Oxon., M.R.C.P. Lond., Medical Officer, Herts County.
H. FINNEMORE, B.Sc., F.I.C., Pharmacist to Guy's Hospital.

THE THERMO-NEEDLE OR SKEWER THERMOMETER.

A SIMPLE and accurate method by which a certain internal temperature of food in the process of cooking is assured obviously fulfils a hygienic purpose. Appliances have already, of course, been constructed for the same end in view, but we do not remember to have met with one quite so simple in construction and so convenient to use as the thermo-needle invented by Messrs. S. A. C. Kristensen and J. Nielson of Copenhagen, who are represented in this country by Mr. Joseph N. Lempart, of 25, Victoria-street, London, S.W. In the words of the patent specification, "the needle consists of a very thin metal tube provided at its lower end with a sharp point, so as easily to enter the meat or other article of food whose temperature is to be gauged. In the needle is placed a spring held in tension by means of a substance melting at a temperature to be indicated and thereby releasing the spring, so that a pin or button shoots up from the needle as a signal that the proper temperature has been reached." We placed the needle in cold water contained in a glass vessel standing over a gas burner. When the temperature of the water reached 170° F. the button pushed forward. It can be replaced again by pushing it down while at that temperature and then allowing it to cool by withdrawing the instrument, when the fusible metal once more sets and fixes the inner rod. The spring is now no longer free to act upon the button until released by the melting of the metal which occurs at the desired temperature. By varying the proportions of the constituents of the fusible metal other temperatures can be indicated. The needle provides not only for the thorough cooking of the internal portions, particularly of animal food, but may indicate also when the vitality of any micro-organisms that may be present in those portions is destroyed.

GLASGOW UNIVERSITY CLUB.—The annual meeting of the Glasgow University Club, followed by the third annual dinner, will be held at the Midland Hotel, Manchester, on Wednesday evening, Dec. 2nd. The annual meeting will be at 6 P.M. and the dinner at 6.30 P.M. It is hoped that as large a number of graduates as possible will attend this réunion to welcome distinguished guests. All communications should be made to Dr. D. Richmond, 176, Drake-street, Rochdale.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 14, 1908.

The Crimes of the Insane.

IN these prosaic days, when we no longer accept the ravings of the maniac as the inspired utterances of the Divinity and when it is recognised that even the artistic temperament need not imply an eccentricity of taste either in costume or in morals, the chief social importance of the insane has come to lie in the menace which they may offer to the public safety. They are objects of interest to the community not as potential prophets or as potential poets but primarily and chiefly as potential criminals. And this attitude of mind is, of course, in some degree quite natural; it has its justification in the fact that a variable measure of incapacity of adaptation to the social *milieu* is in truth implied in the very nature of insanity and, as has been found by those who have essayed the hard task of its definition, is perhaps the best criterion which we can devise of what constitutes madness. At the same time it has the drawback that, as it tends to fix the attention on one particular aspect of insanity to the exclusion of every other, it is very prone to give rise to views which, as being partial and distorted, are in the end quite as misleading and quite as mischievous as any errors that are the product of the unfettered imagination. And this is in fact what has occurred with the popular belief about the insane, which, if we may fairly estimate it from its reflection in the oracles of the press, would appear to suppose that the lunatic of real life, like the picturesque madman of sensational fiction and transpontine melodrama, is invariably an instinctive homicide. It is easy to see that this unfortunate impression must help very largely to maintain and to increase that prejudice against the insane which still excludes them from full participation in the advantages that the progress of medical science has brought to the victims of bodily disease; and on this account it seems regrettable, as from the intrinsic interest of the question it is surprising, that the criminal proclivities of the insane should not have been the object of more exact investigation than is to be found recorded in the literature either of criminology or of mental disease. This deficiency in our knowledge is particularly evident with regard to the differences in the degree and character of criminal tendency in the several forms of insanity, concerning which our stock of ideas is practically limited to a few well-worn generalities such as that paretic dements are prone to thieving and that epileptics are frequently homicidal. The scantness of data on this point gives a special interest to the very remarkable study of the relation of forms of insanity to modes of crime which is contained in the last annual report of the Medical Inspector of Prisons recently noticed in these columns.[1]

[1] THE LANCET, Oct. 17th, p. 1156.

Dr. H. SMALLEY'S observations deal with 1334 prisoners certified insane in the local prisons of England and Wales during the ten years 1898-1907. As he points out, in all these cases indications of insanity were either present when the individuals were received into prison or developed very soon after, so that it may be presumed that the disease was in process of evolution at the time of the offence and contributed to its causation, and that, in short, the crimes were really precocious symptoms of mental disorder. Cases of this sort may accordingly be regarded as constituting a distinct group in which disturbances in the sphere of conduct precede overt disorders of thought, and they are for this reason likely to afford clearer and more trustworthy indications of the characteristic mode and direction of the impulses in the several forms of disease than can be inferred from cases where the morbid acts appear as dependent on delirious ideas. Assuming, then, that the cases included in Dr. SMALLEY'S statistics are representative in this way of the criminality of the insane—and though they refer only to convicted prisoners we may probably accept them as at all events fairly typical—how are we to analyse them from the point of view which we have indicated? This question brings us at once to the main difficulty in all inquiries of this sort—the difficulty, namely, that arises from the inevitable defects of every system of classification that has been tried for either of the two sets of facts which we wish to bring into relation, that is to say, on the one hand, the disorders of social conduct and, on the other, the diseases of mind. Dr. SMALLEY has met this difficulty by taking for the forms of delinquency the divisions used in the criminal statistics, which, if they have not much correspondence with psychological requirements, can at least be combined and transformed into categories bearing some definite relation to primary instincts; while for the clinical varieties of insanity he has retained the system of classification which has been employed for many years in the official returns of the English prisons and which is based on the time-honoured division into mania, melancholia, and dementia, extended by subdivisions and supplemented by the groups of general paralysis, epileptic insanity, and congenital mental deficiency. For collecting data from a number of observers with different points of view and different opinions as to the value of the shifting syndromes of psychiatry this classification is probably as good as can be devised. It at all events gives us the means of separating out a number of fairly definite disease forms which we can then compare with regard to the amount and character of the delinquency to which they severally give origin.

Applying these methods of analysis, we naturally turn first to general paralysis as being a relatively well-defined clinical variety, and one, moreover, which enjoys a traditional pre-eminence amongst the diseases that are likely to lead to criminal conduct. Its reputation in this respect is confirmed by Dr. SMALLEY'S figures, which give it as the form of insanity in 164 cases, being 12·3 per cent. of the whole series, or nearly double the proportion (6·8 per cent.) found by the Commissioners in Lunacy in their census of admissions to ordinary asylums in the five years 1902–06. With regard to the sort of crimes committed by the general paralytics,

we find, in harmony with current ideas, that there is a decided predominance of offences of acquisitiveness which account for just half the criminality in this group. On the other hand, it is rather surprising to note that as many as 16 of the prisoners returned as suffering from this affection had been convicted of homicidal offences. It would be interesting to know whether these homicidal cases were of the melancholic type of the disease or whether the unusual character of the impulses was due to an admixture of alcoholism in their causation. Passing next to the consideration of epileptic insanity, which is also of much medico-legal notoriety, we observe as the most striking feature in the prison statistics that the number of cases counted under this heading is extremely small, being in fact only a shade over 3 per cent. of the total. This is a point of some interest in connexion with the theories of the Italian criminologists who regard crime as being in the main an expression of the epileptic organisation, and who appeal as a proof of their hypothesis to the high proportion of epileptics to be found amongst the *habitués* of prisons; in this matter, as in some others, it must be supposed that the formula of criminality is hardly the same in Italy as in other countries. Coming now to the cases classed under one or another of the varieties of mania and melancholia we reach the most decisive and interesting result of the whole analysis: this is the enormous predominance of the systematised insanities (delusional mania and delusional melancholia) amongst the forms of mental disease that lead to criminal acts. In the whole series 37·4 per cent. of the males and 50 per cent. of the females come into this category, and it forms also the largest individual group in every section of delinquency; amongst homicidal offenders 40·9 per cent. of the males and 53·3 per cent. of the females appear under this heading, and amongst sexual offenders and prisoners convicted of crimes of acquisitiveness it accounted for 35·7 per cent. and 36 per cent. respectively. The extreme frequency of this type of insanity in criminal lunatics will seem more remarkable when it is borne in mind that in the non-criminal insane the proportion of cases of systematised delirium is relatively small: in the census of the Commissioners in Lunacy already referred to it amounted only to 4·4 per cent. It gives additional interest to this result to find that a similar predominance of paranoia, which we may take to be synonymous with the delusional insanities in Dr. SMALLEY'S classification, has been observed in insane criminals in other countries. A distinguished Italian alienist, GIUSEPPE ANGIOLELLA, drew attention to this fact some years ago,[2] and based on it a theory that the anomaly of character, which is the potentiality of paranoia, is akin to the essential anomaly of the moral idiot and the instinctive criminal, and that the lunatics who become criminals start with an organic predisposition to crime. Dr. SMALLEY'S investigations would go to support this view, especially as they show that the criminal tendencies in this form of alienation are not restricted to homicide but are manifested also in other antisocial acts, and further, that, so far from being the consequence of delirious thought, the criminal conduct of the paranoiac is quite likely to be the earliest evidence of his morbid condition.

[2] Della Criminalità nei Pazzi, Il Manicomio, 1903.

Anthrax at Bradford.

To many, we might almost say to the majority of, practitioners of medicine the lesions that follow the infection of the human subject by the anthrax bacillus are familiar by report only. This fact is the more remarkable in that anthrax in animals is pretty evenly distributed throughout the rural districts of this country, but the comparative immunity enjoyed by farm hands and by knackers and the like may be explained on the assumption that infection in man is much more likely to follow inoculation with the spores than with the less virulent vegetative form of the specific organism, as bacilli only, and not spores, are present in the blood and tissues of diseased animals. That this assumption is correct so far as regards laboratory experiments upon the lower animals was fully proved by PASTEUR many years ago. Clinically three types of human anthrax are described, according to the site of the primary infection—viz., cutaneous, pulmonary, and intestinal; happily, the last named, due to the ingestion of infected flesh in the raw or partially cooked state, is unknown in this country. The former two occur almost solely in connexion with certain industries, so that anthrax in man may be regarded purely as an occupation disease, restricted, from the geographical point of view, to those manufacturing centres occupied by wharves, tanneries, and wool factories; while the clinical manifestations vary with the occupation of the victim. Thus anthrax in stevedores and wharfingers who handle cargoes of foreign hides and fleeces is of the cutaneous variety and the local lesion is usually situated on the hand or forearm, cheek, angle of the jaw, or neck, the last three sites usually denoting infection from bales carried on the shoulder; in the employees of the tan-yard the malignant pustule or charbon may be situated on th hand, arm, leg, or thigh, as here the men manipulate individual hides at, or near, the ground level; while in the wool sorter and carder the infection is usually derived from fine hairs contaminated with the spores of the anthrax bacillus which are inhaled during respiration and affect primarily the upper air passages or the lung tissue itself. The cutaneous variety of the disease results in a clinical picture absolutely typical and unmistakeable; indeed, we can only call to mind one anomalous pustule out of the scores that have come under observation and only one instance where the anthrax pustule was so closely simulated by some other lesion (a vaccinia pustule on the cheek) as to lead to operation. Again, cutaneous anthrax is obvious, demands attention during the early days of infection, and readily lends itself to surgical treatment. The pulmonary form of anthrax, on the other hand, gives rise to exceedingly obscure and ill-defined symptoms, progresses more rapidly than the cutaneous variety, is beyond the reach of even twentieth-century surgery, and is usually recognised and diagnosed too late, if at all, for even the serum prepared by SCLAVO to be of any real value; consequently the case mortality here reaches an appallingly high figure.

These facts point to the vital importance of preventive measures against the infection of anthrax in connexion with the wool industry and afford a ready explanation of the keen interest that centres upon the work of the Anthrax Investigation Board in Bradford. The reports presented from time to time to the board by its able bacteriologist, Dr. F. W. EURICH, indicate the scope of the work and the valuable results already obtained. Last month's report in particular is of considerable importance, for in it, after mentioning that during the months from May to October nine firms had submitted samples of wool for examination to a total of 116, and of these 10, including samples of Peking camel hair, Bagdad skin wool, mohair, and Cape mohair, contained anthrax germs, Dr. EURICH shows that the blood-stained wool and hair are the actual carriers of the germs of anthrax and not the dust found in the wool as formerly believed; but that although the dust *per se* is harmless it may become dangerous by reason of its admixture with scales of dried blood derived from the tainted hairs. Hence the amount of blood staining of a fleece forms a rough measure of its danger to health. This observation is quite in accord with the experience of other bacteriologists who are interested in the occurrence of anthrax spores in hides rather than in wool, and with whom it is customary to select for examination the blood-stained edges of the hide, which mark the original incision, and to search for the blood-stained patch of hair which marks the place or places where the skinning knife was wiped. Dr. EURICH further points out that blood may remain on the wool fibres even after washing and may thus be a source of danger to carders, combers, and the like, who manipulate it after it has passed the wash bowls; and he emphasises the necessity for detecting blood-stained material before the wool is washed or willowed so that it may be at once removed and either effectually disinfected or, better still, destroyed.

The action of various disinfectants, including formaldehyde and cyllin, upon the blood-stained and infective material has also been carefully studied but the results are somewhat disappointing, for owing to the protection afforded to the anthrax spores by the matting together of the blood-stained fibres neither reagent could be relied upon to effect the destruction of the spores, even after exposures greatly in excess of those required to kill anthrax spores simply suspended in water. Formaldehyde, however, possesses this valuable property—by its action upon the albuminous constituents of the blood it fixes the blood stains to the fibres and so prevents diffusion of the virus into healthy fleeces, and this property, Dr. EURICH thinks, might well be utilised in the treatment of scheduled wools, Van mohair and Persian locks, which the Home Office regulations prescribe must be steeped "in the bale" before the latter is opened. Needless to say, the board at its last meeting heartily endorsed Dr. EURICH'S recommendations, whilst its chairman stated that every endeavour would be made to insure the continuance of its work beyond the period of three years, now at an end, for which the board was originally appointed. Although, as we have shown, much has already been achieved, much more yet remains to be done before adequate methods of prophylaxis can be devised, and we can only hope that the exertions of the Lord Mayor of Bradford, Mr. J. E. FAWCETT, who is the chairman of the Anthrax Investigation Board, may be crowned with success.

Report of the Medical Officer of the Local Government Board.

THERE is an apparently inexorable rule in the Civil Service that when the clock of a man's life strikes 65 he must lay down the pen which he has wielded for his country for perhaps 40 years or more and close his official career; and it was in accordance with this edict that Sir WILLIAM H. POWER, K.C.B., F.R.S., to the infinite regret of all who knew his work, signed his last report and retired at the beginning of the present year. In what is nominally his first annual report Dr. ARTHUR NEWSHOLME, the present medical officer, pays a graceful tribute to his very distinguished predecessor, a tribute which will be appreciated by that somewhat limited circle who had the privilege of Sir WILLIAM POWER'S acquaintance as well as by that very large number of the more scientific epidemiologists who learnt to regard the late medical officer of the Board as a man of altogether exceptional calibre. In his dislike for all ostentation and advertisement Sir WILLIAM POWER evinced the highest qualities of the civil servant and raised the department over which he presided to one in which the country had complete trust. Fortunately, as Dr. NEWSHOLME adds in his report, the State still retains the services of Sir WILLIAM POWER as chairman of the Royal Commission on Tuberculosis and as a member of the Royal Commission on Sewage Disposal.

The auxiliary scientific investigations which are conducted annually for the Board by workers presumably not otherwise officially connected with it deal as usual with subjects of considerable interest only some of which can be briefly touched upon here. Dr. E. E. KLEIN has continued his valuable researches into the prophylaxis of plague. It will be remembered that last year his experimental work showed that when the dried material from the necrotic organs of the guinea-pig in which subacute plague had been induced was injected into white rats such rats were rendered immune against subsequent infection with a fatal dose of bacillus pestis. It has been shown, too, that a clear filtrate of a watery extract of these necrotic organs, even when heated to 65° C. for ten minutes to destroy all living bacilli or cocci, was similarly efficacious in a prophylactic sense, the filtrate possessing the additional advantage that it may be preserved at least for many months in sealed tubes and used in this and foreign countries. Dr. KLEIN has recently been studying the use of these organic extracts in a curative as well as in a prophylactic sense and he has discovered that although the actual blood of an animal which has recovered from an attack of plague does not contain any appreciable amount of antibodies capable of neutralising the action of specific microbes the watery extracts of the organs chiefly affected in the disease and which belonged to rabbits which had recoverd from an attack of the malady possess considerable therapeutic potency, a subject upon which, it is to be

hoped, Dr. KLEIN will be afforded further opportunities for research.

Another of the more practically important matters dealt with in the volume under review is an investigation into the bacterial contents of sewer air. In this connexion it now appears we have been for several years past living in a somewhat insecure paradise. It has been a commonly accepted axiom of the epidemiologist on the basis of bacteriological investigations that the air of sewers and drains contained but very few micro-organisms and that such as were present resembled more closely the flora of the outside air than that of the sewage. In consequence of this belief the etiological student has viewed with scepticism any hypothesis which sought to explain the spread or prevalence of specific diseases such as enteric fever or diphtheria by the escape of sewer gases. But Dr. F. W. ANDREWES as the result of recent investigations carried on with great care is satisfied that the imperfect technique and culture methods of former years led to erroneous conclusions, and that as a matter of fact the streptococci of sewage as well as colon bacilli are to be found in the air of drains and sewers in many ordinary circumstances. The fresh light thus shed upon this problem by Dr. ANDREWES as well as by Major W. H. HORROCKS working quite independently will have a decided influence upon questions affecting the ventilation of sewers and drains, and it will have to be considered in connexion with a movement amongst some engineers for the abolition of the intercepting trap between the house drain and the street sewer. Question will arise as to the desirability of allowing common sewer air to pass up *viâ* the house drain ventilator if such air is likely to contain organisms of sewage origin. The President of the Local Government Board has taken prompt action in the matter and, as we announced last week, has already appointed a departmental committee to investigate the question of the desirability of discarding or retaining the intercepting trap. The matter is largely one for the physicist and we have no doubt that the committee will secure the services of a thoroughly competent expert in physics to aid them in their deliberations. We question whether a really scientific solution of the problem is possible without further research both in physical and bacteriological directions, and in the meantime most epidemiologists will, we imagine, sleep more soundly with the knowledge that their ventilating pipes are not used for ventilating the sewers. It will be interesting to watch the results of these new conclusions upon etiological speculations and we foresee the production of diagrams illustrating the manner in which enteric fever follows the course of sewers. There is fashion in epidemiology as well as in matters feminine and with each new discovery or correction of former impressions the pendulum swings unduly in the new direction. Yesterday enteric fever was all water-borne, soil-borne, and sewer-borne; to-day it is due to shell-fish, carrier cases, flies, and personal infection; and to-morrow the disease will, perhaps, be sewer-borne again. There is a strange want of proportion in the application of new ideas.

The bacterial contents of milk form the subject of investigation at the hands of Dr. W. G. SAVAGE who tells us, amongst much else that is of value, that milk drawn directly from the udder is free from the bacillus coli, a further argument, if one was needed, for the better control of the transit and storage of milk. The bacteriology of rheumatic fever has been made the subject of an investigation by Dr. T. J. HORDER. He has been unable to discover in the blood of patients suffering from that disease any micro-organisms, those found in some cases post mortem being, it is thought, merely the organisms of terminal infection. He clearly thinks that in some of the alleged positive results malignant endocarditis and not rheumatic fever has been in question. The only other investigation which we have the space to mention is that relating to the conservation of vaccine lymph, a matter of primary importance in the event of small-pox occurring under the facilities now afforded by the State for the evasion of vaccination. Dr. F. R. BLAXALL and Mr. H. S. FREMLIN have found that sustained subjection of glycerinated calf lymph to temperatures below freezing point leaves the activity of the lymph quite unimpaired even after a relatively long period of time. This is a very satisfactory result and apparently large quantities of lymph can by this method be always kept in stock against emergencies. Thus does science provide for the waywardness of human nature and the weakness of politicians. It is very useful for us to have previous conclusions revised and new claims examined under the auspices of a central department of the State and everyone must acknowledge that the funds available are well spent. At the same time, having regard to the great advances which have been made in recent years in the subject of protozoology, it might prove profitable were some encouragement afforded to workers in this field, more especially in connexion with diseases and conditions with which no bacteria have been detected or where the claims made by the bacteriologist have not received final sanction.

Annotations.

"Ne quid nimis."

THE BIRTHDAY HONOURS.

THE list of birthday honours is a fairly long one and in the eyes of many it is only saved from mediocrity by the distinguished men of science whom it includes. It should in this respect receive the approval of all thoughtful persons, for some of the names thus brought prominently before the public are eminent in those branches of science the development of which tends most directly towards the improvement of the human race. The veteran biologist, Dr. Alfred Russel Wallace, has been appointed by the King to the Order of Merit, for which no worthier recipient could have been named amongst living scientists. The value of his work, no less than the rare self-effacement with which Dr. Wallace yielded the chief honours of the doctrine of evolution to Darwin at a time when his own claims to them would have urged many a smaller man in a like position to contest them bitterly, renders it all the more gratifying that in the evening of his days he should be crowned with one of the highest distinctions within the bestowal of his Sovereign. Dr. Wallace is one whom the nation no less than the King delights to honour. Professor Joseph John Thomson, who has received the honour of knighthood, is Cavendish Professor of Experimental Physics

in the University of Cambridge and President-elect of the British Association. His work in his own sphere has been no less excellent than that of Dr. Wallace in biology, and many of Sir Joseph Thomson's fellow physicists outside our own country will feel that their science is honoured in the official recognition thus accorded to his services to the State. The medical profession is represented by five names. Sir George Anderson Critchett, C.V.O., is promoted to a baronetcy, in consideration of his services as honorary surgeon oculist to the King and his numerous contributions to the science of ophthalmology. Mr. Jonathan Hutchinson, who receives a knighthood, has well deserved that honour, for he has devoted his life arduously to the advancement of medicine; he stands in the forefront of modern syphilology and has also made his mark in surgery. Dr. Thomas Oliver and Dr. Stewart Woodhouse have also received knighthoods. Sir Thomas Oliver is professor of physiology in the University of Durham and was formerly medical expert to the Home Office Dangerous Trades Committee and representative of the Home Office at the Madrid International Congress on Hygiene in 1898. Sir Stewart Woodhouse was formerly a medical member of the General Prisons Board of Ireland, and is author of a book entitled "Hints for Improving the Condition of the Working Man's Life." Dr. Donald MacAlister has been created a Knight Commander of the Bath. He is one of those men who would have gained certain distinction in any profession to which he chose to direct his abilities. He is the only medical man, if we are not mistaken, who has been Senior Wrangler and first Smith's prizeman. As the right-hand man of two professors of medicine, and as tutor of St. John's College, Cambridge, he has earned a deep debt of gratitude for the work which he has done for the Cambridge School of Medicine. As President of the General Medical Council he has fulfilled his duties in a manner which has already insured his unanimous re-election to that responsible office. Under his rule the work of the Council has attained its highest level of efficiency. It will be recalled that the University of Glasgow lately elected him Principal and Vice-Chancellor. To him and to the other gentlemen whom we have mentioned we offer hearty congratulations in the name of the medical profession.

FOOD POISONING.

THE cause of the serious symptoms which occur in association with epidemics of food poisoning has been the object of considerable research, but even at the present time there is a general misconception as to the nature of many of them. The discovery of ptomaines, or poisonous alkaloidal substances, by Brieger, Selmi, and others in putrescent or decomposing animal matters led to the generalisation that most of the cases of food poisoning were due to the toxic effects of these substances, and the general term of ptomaine poisoning gained currency. More recent observations have, however, shown that bacterial agencies are in the majority of instances the exciting cause, either directly or through the activity of toxic products, and that cases of actual ptomaine poisoning are rare. Since Gärtner in 1888 isolated the bacillus enteritidis from meat which had caused poisonous symptoms in man, this organism or others closely allied to it have been found in many cases of meat poisoning. It has been found to produce an endogenous toxin which is not destroyed by prolonged heat. We publish in another column a brief notice of a case of meat poisoning as a result of which an action was brought to recover damages in a county court. The plaintiff suffered from gastro-intestinal symptoms shortly after a meal in which some pressed beef was eaten. For the defence it was stated that the meat was pickled soon after the animal was slaughtered, and after being in pickle for eight days was boiled and pressed. Cases of poisoning have not infrequently been observed from infected meat prepared in this manner, and the processes of pickling and subsequent cooking are not sufficient to destroy the activity of the toxins of an organism such as the bacillus enteritidis. A second interesting note concerning another and less common form of food poisoning—viz., that as a result of eating cheese—is recorded on p. 1443 by Dr. W. B. Evans. The seven patients were all of them under the age of 17 years and suffered from more or less severe gastro-intestinal symptoms, associated in the cases of the two youngest with a considerable degree of collapse, a few hours after a meal of cheese and bread. Dr. Evans examined a specimen of the cheese, which smelt rather strongly and had a crumbly appearance but was not offensive. As long ago as 1884, in investigating an epidemic of cheese poisoning, Vaughan isolated a substance from the cheese to which he applied the name of tyrotoxicon. Subsequently he found that this substance could be isolated only in rare instances, and he concluded that the cause of the symptoms in many cases was an organism belonging to the colon group. At the present time it is generally believed that cases of poisoning by milk and its products, including cheese, are due, like those of meat poisoning, to bacteria or their toxins.

A NEW FORM OF OSTEOPLASTIC AMPUTATION AT THE ANKLE.

MANY methods have been devised for amputating the foot and in several of them a portion of the os calcis is retained and is applied to the lower end of the tibia from which the articular surface has been removed. In Pirogoff's operation a little less than the posterior half of the calcaneum is preserved. Sédillot and Gunther have employed modifications of the method, and Pasquier Le Fort has devised an operation in which the os calcis is sawn horizontally so that the patient walks on the same portion of the heel as in a normal foot. Tauber uses the inner aspect of the calcaneum for his bone graft, and the patient walks on the skin covering that part of the calcaneum. In the October number of the *Revue de Chirurgie*, P. Duval has described a new form of osteoplastic amputation of the foot. He points out that the other methods of performing amputation of the foot with retention of a portion of the calcaneum require that that bone should be absolutely unaffected by disease, and all surgeons agree that these osteoplastic amputations are unsuitable in cases of tuberculous disease of the ankle-joint or of the articulation between the astragalus and the os calcis. Duval claims that if the skin flap is taken from the neighbourhood of the malleoli and the bone-flap from the extreme hinder part of the os calcis, which he maintains is generally unaffected in tuberculous diseases of the adjoining articulations, a good result can be obtained. The skin incision resembles that advised by Guyon for his elliptical submalleolar amputation. The flap is turned up except opposite the posterior surface of the calcaneum; the saw is then entered at the junction of the under and posterior surfaces of the bone and the bone is sawn from below upwards and slightly backwards, so that the whole thickness of the bone is not taken, the upper limit of the piece of bone to be retained being midway between the tendo Achillis and the upper border of the bone. The portion of bone left is of such a size as to fit well on to the tibia. The lower end of the tibia is then removed without opening the joint at a level of four centimetres above the internal malleolus, and the fibula is sawn half a centimetre higher. The foot is removed, the tendons and nerves are shortened, and the bone-flap is placed under the lower end of the tibia, to

which it is fastened by a stitch of silver wire. The periosteum of the two bones is also sutured. The tendo Achillis exerts no traction on the heel flap but the wiring is advisable. Duval has performed this amputation in one case. The patient was an adult who had tuberculous disease of the ankle and mid-tarsal joints, but without any sinuses; it had been treated unsuccessfully for many months by immobilisation. He left the hospital five weeks after the operation with the wound perfectly healed, and when seen a year later he could walk well with an artificial foot. The method appears to us likely to be useful in suitable cases, but suitable cases must be very rare, for before he undertakes the operation the surgeon must be certain that the disease has not involved the hinder part of the calcaneum.

MEDICAL MEN AND MUNICIPAL HONOURS.

THE following is a list of the members of the medical profession who have been elected or re-elected to the mayoral chair for the forthcoming year:—Aldeburgh, Mrs. E. Garrett Anderson, M.D. Paris, L.S.A.; Brecon, Mr. G. P. Francis, L.R.C.S. Edin., L.A.H. Dubl., J.P. (re-elected); Berwick-on-Tweed, Mr. C. G. Maclagan, M.B., M.S. Edin.; Conway, Mr. M. J. Morgan, L.R.C.P., L.R.C.S. Edin.; Denbigh, Mr. J. R. Hughes, M.D. Edin. M.R.C.S. Eng., L.S.A.; Eye, Mr. E. G. Barnes, M.D. Lond., M.R.C.S. Eng., L.S.A.; Finsbury, Mr. W. A. Dingle, M.D. St. And., L.R.C.P. Lond., M.R.C.S. Eng., L.S.A.; Kingston-on-Thames, Mr. W. E. St.L. Finny; Montgomery, Mr. N. W. F. Humphreys, M.R.C.S. Eng., L.S.A. (re-elected); Ruthin, Mr. T. O. Jones, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg. & L.M.; Welshpool, Mr. R. D. Thomas, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg. & L.M.; Winchelsea, J. R. Skinner, M.B., C.M. Aberd.

IMPURE SODA-WATER.

A REPORT has recently been published by the medical officer of health of the City of London, Dr. William Collingridge, which had its origin in the investigation of a case of diphtheria, suspicion having fallen upon some soda-water which the patient had been in the habit of purchasing from a City shop. The bacteriological examination of this soda-water was decidedly unsatisfactory. The sediment contained an enormous number of microbes, including cocci, sporing bacilli, but in the main "small Gram-positive non-mobile bacilli which in shape resembled diphtheroid microbes." There was, however, no evidence that these were the Klebs-Löffler diphtheria bacillus, although from their characters they doubtless belonged to the large tribe of "diphtheroid bacilli." It is evident from these results that carbonic acid gas, even when contained under pressure, exercises little, if any, destructive action upon this species of bacillus. Subsequently a general inquiry was made, with the result that Dr. E. E. Klein's bacteriological examination showed that of the 36 samples examined 27·7 per cent. were pure, 19·4 per cent. fairly pure, and 52·7 per cent. impure. An inspection of the factories elicited that in most cases the causes of contamination were defects in the system of bottle-washing and exposure of water to risk of pollution in tanks constructed of wood and to the absence or imperfection of covers to the receptacles containing either the water or solution. These facts on being represented to the trade were met in a very proper spirit, for many makers (about 40 at the time the report was being printed) joined together in an organisation to insure the purity of the soda-water made by them deciding on the carrying out of certain recommendations made by the medical officer. A register is to be kept for the purpose of recording the names of manufacturers who comply with the requirements. Under these regulations each owner of a mineral-water factory is required to submit (1) a certificate from the medical officer of the district in which the factory is situated to the effect that the premises are in a satisfactory condition; (2) a bacteriological analysis of the water-supply used (if a public supply is used the certificate of the authorities supplying the water will be sufficient); (3) a bacteriological analysis of the finished goods; and (4) an undertaking to carry out the regulations provided on a form. The regulations refer to the purity of the water-supply as ascertained by bacteriological examination, the similar analysis of products, the efficiency of the filters, the cleanliness of rings and stoppers, the question of the construction and material of the solution and storage tanks (wood being considered quite unsuitable for the purpose), methods of bottle washing, and so forth. Lastly, it is suggested that those makers who refuse to comply with these regulations should be dealt with in the usual way, that is to say, that samples should be taken from time to time under the provisions of the Sale of Food and Drugs Act and submitted for analysis, and that proceedings should be taken in the event of the analysis proving unsatisfactory.

THE PURIFICATION OF DOMESTIC WATER SUPPLIES.

IN the *Bulletin des Sciences Pharmacologiques* M. L. Lutz gives an interesting account of the various methods that are available for the purification of domestic water supplies. The four chief chemical methods depend, directly or indirectly, upon the production of active oxygen. Potassium permanganate is open to the objection that its continued use might be harmful to persons who do not easily tolerate potassium. The corresponding calcium salt is preferable, as it yields an almost insoluble residue. In either case, from 1½ to 2 grains of the permanganate are added to each gallon of water which is allowed to stand for about 15 minutes. Various means have been suggested for getting rid of the excess of permanganate—e.g., by the addition of some organic matter such as sugar, wine, alcohol, coffee, tea, or charcoal; but M. Lutz considers that the addition of a manganous salt is the most rational method to adopt. Another method of purification consists in employing an apparatus for the production of ozone. The Otto type is the most suitable for domestic use, but it is expensive and can only be used where an electric current is available. In addition to these disadvantages it renders the water ferruginous and does not destroy resistant spores, including those of bacillus subtilis and bacillus mesentericus. The halogens form excellent bactericidal agents, but chlorine imparts to water a most disagreeable taste, while the use of bromine is too dangerous to be recommended. The iodine method of M. Vaillard and M. Georges, however, is well adapted for practical use, the sole objection being that very small quantities, amounting to three-quarters of a grain per gallon, of the iodide and tetrathionate of sodium are thereby introduced into the water. In carrying out the process a tablet containing sodium iodide and sodium iodate and another composed of tartaric acid are added to the water and after ten minutes the free iodine is eliminated by the addition of a tablet of sodium hyposulphite (quantities not stated). The fourth method depends upon the treatment of water with calcium peroxide in the proportion of 21 to 35 grains per gallon, followed by filtration through manganese dioxide. But the process is slow, requiring two or three hours for the destruction of all organisms, particularly the colon bacillus. It may be hastened by the addition of a salt of aluminium or sodium bicarbonate. The filtration removes the active bactericidal agent, hydrogen peroxide, and the filtered water is free from added impurities, excepting traces

of calcium carbonate. M. Lutz points out that it is difficult to persuade the public to make use of a chemical method of sterilising water owing to a lingering doubt whether the purifying agents themselves may not introduce contamination. Preference is usually given to the physical method of boiling the water which effectually destroys the principal pathogenic bacteria, though it is necessary to raise the temperature to 120° C. in order to kill the spores. Boiled water, however, tastes flat, a disadvantage that can be overcome by boiling the water in a closed vessel of special construction. According to M. Lutz the simplest and most suitable apparatus of this kind for household use is that of Lepage. It consists of a closed boiler automatically supplied with water from a reservoir. The boiled water is syphoned off and passes alongside the cold supply for a considerable distance. In this way the inflowing water acquires heat from the outflowing stream which is thereby well cooled by the time it reaches the exit. The Lepage apparatus, though the best of its kind, cannot be altogether depended upon to destroy all the spores that may be present in the water and it possesses the further disadvantage that it only partially retains the natural gases in the water.

"AT THE POINT OF THE LANCET."

THE phrase is Parker's, the medico-missionary who ascribed the conquests made in China by himself and his subalterns to "Jennerian vaccination." Nor was he singular in giving the first place to medicine in the armoury of missionary enterprise. Centuries before him the Portuguese Jesuits had found the same weapon an invaluable resource in overcoming the jealousy, nay, the actual hostility, of the savage tribes whom they sought to Christianise, and in the "forties" of last century the emissary of the Propaganda, William (afterwards Cardinal) Massaia, by minimising the scourge of variola in the wild Galla country found his way to the minds and souls of the natives comparatively easy. Testimony to similar effect was prominent in the Missions Section of the recent Pan-Anglican Congress, and, in the day now passing, we have confirmation of it in a book as romantic as it is veracious and edifying, the biography of Dr. James Stewart of Lovedale.[1] No work of fiction can evoke a more thrilling response from the reader than this record of difficulties grappled with and overcome, of philanthropic ideals realised, in founding and consolidating the Protectorate of British Central Africa—the "work," as we have it on high authority, "of two men"—and these medical in training and qualification—David Livingstone first and James Stewart second. In truth, these missionary explorers in the Dark Continent were consciously or unconsciously labouring as "builders of empire," a labour ere long to be more fully appreciated when the dream of Cecil Rhodes becomes a *fait accompli* and the Cape will be connected with Cairo by combined steam-service over land and water. Among the many admonitions conveyed by this prospect there is one that cannot be too speedily or too earnestly entertained, to wit, the practical acknowledgment of that agency by which the moral supremacy of Great Britain has been mainly achieved in savage countries, the healing art, prophylactic and therapeutic. Schools of tropical medicine, already started with the best augury in these islands, ought to be multiplied and reinforced, manned with the most efficient *personnel*, and equipped with the most richly appointed laboratories and armamentaria. No seat of learning, in fact, which trains and qualifies for the practice of medicine ought to be reckoned complete till it has at least one chair for the teaching of aspirants to such practice in that "Greater Britain" beyond the seas. Scholarships enabling their holders to travel to the scenes of their future activity would also be an adjunct to the resources of these schools, constituting, in fact, a kind of "post-graduate course" invaluable as a pre-requisite of proficiency and success. In the immediate future the task of extending and consolidating the sphere of British influence, tropical and sub-tropical, is as clear as it is clamant, and the State must intervene, and that right early, if the lessons borne in upon it from abroad, as appeals to self-interest and as warnings of competition yet to be encountered, are not to have been lavished in vain. "Sanitas sanitatum, omnia sanitas," was one of the many watchwords of Lord Beaconsfield which mark him as a "statesman in advance of his time," but even he could hardly have foreseen its special significance and cogency as now illustrated and enforced by the medically qualified missionary, for whose service there is an ever increasing demand.

[1] The Life of James Stewart, M.D., D.D., F.R.G.S., by James Wells, D.D. With 42 illustrations and two maps. London: Hodder and Stoughton. Price 5s. net.

HENOCH'S PURPURA COMPLICATED BY TWO INTUSSUSCEPTIONS.

IN the *British Journal of Children's Diseases* for August Mr. Hugh Lett reported the following remarkable case. A boy, aged three years, was admitted into hospital on Sept. 29th, 1907. He was quite well until 4 P.M. on the 27th, when he complained of pain in the left leg and his mother noticed that the knee was swollen. During the night the left elbow swelled and next morning considerable swelling of the scrotum and legs was found. On the evening of the 28th his mother noticed two "purple watery blisters" on his left leg. His left ankle was then so swollen that his sock had to be cut before it could be taken off. On the 27th the bowels acted frequently and the motions were only partly formed. On the morning of the 28th there was one normal motion and he was seized with paroxysms of abdominal pain. Similar attacks followed until admission, and blood and mucus were passed on the evening of the 28th and during the night. Vomiting occurred once on the morning of the 29th. On admission the temperature was 99·4° F. and the pulse was 140. There were small purpuric patches on the ears, legs, and scrotum. The abdomen was slightly distended, though not tender. Palpation revealed a sausage-shaped swelling in the right lumbar region. Rectal examination was negative, but the examining finger was found to be covered with blood. A small motion passed after admission consisted of only blood and mucus without a trace of bile. Laparotomy was performed through the right rectus muscle and an ileo-cæcal intussusception was found and reduced without difficulty. On the 30th he appeared to be much better and had a normal motion. But the purpura was a little more marked. On Oct. 2nd diarrhœa began, the stools contained blood, and there was some abdominal pain. On the 3rd the purpura had considerably increased; there were large patches on the face, hands, and ears which were turning black and beginning to form blebs. On the 6th the boy vomited four times and again complained of abdominal pain. On the 7th the purpura was still more pronounced and the right hand was swollen out of recognition; it was black and the fingers were becoming gangrenous. The left hand was swollen and œdematous between the purpuric patches. The abdomen was distended, the laparotomy wound was purpuric and sloughing, and a coil of intestine was seen at the bottom of it. Vomiting was persistent and the stools consisted of blood and mucus. The abdomen became more and more distended and free fluid was demonstrated in it. Death occurred on the 9th. At no time did the vomit contain blood, the urine was free from blood and albumin, and the spleen was not palpable. The temperature varied between 99° and 102·4° from Oct. 4th

to 7th and then remained at about 99° until the end. The necropsy showed general septic peritonitis and an intussusception five inches long and irreducible 18 inches from the ileo-cæcal valve. No submucous hæmorrhages were found in the intestines. The connexion between Henoch's purpura and intussusception is somewhat complex and the diagnosis between the two conditions may be difficult. Cases of Henoch's purpura have been reported in which an operation was performed for intussusception which did not exist and also cases in which intussusception occurred during an attack of Henoch's purpura but was recognised only post mortem. Difficulties in diagnosis of Henoch's purpura occur in many ways. Dr. G. A. Sutherland has reported a case in which the abdominal pain and vomiting occurred some time before the appearance of any cutaneous lesions and Dr. Theodore Fisher a fatal case in which there were no hæmorrhages into the skin. Professor W. Osler has pointed out that visceral crises may occur independently of the skin lesions. In the differential diagnosis it is useful to remember that Henoch's purpura rarely occurs in children under the age of three years and generally occurs in children several years older, while the great majority of cases of intussusception occur in babies. The late Mr. Harold Barnard pointed out a sign of considerable value in the diagnosis of intussusception in babies: if the blood and mucus on the napkin are carefully inspected and bile is found absent this is a proof of the existence of intussusception. But this test does not hold for older children. The presence of a sausage-shaped tumour which becomes more definite during an attack of pain is characteristic of intussusception. But a hæmorrhage into the mesentery and a collection of coagulated blood in the bowel have been mistaken for an intussusception.

"THE EXTRAORDINARY NASTINESS OF TEMPERANCE DRINKS."

THERE can be little doubt that the cause of abstinence from alcohol would be materially served if good palatable non-alcoholic drinks were forthcoming, and those who are interested in the sale of alcoholic drinks would possibly view with dismay the discovery of a really attractive temperance beverage. In the discussions on the various clauses of the Licensing Bill now before Parliament some interesting sidelights have been thrown on the question. Apparently the main object of the Bill is to reduce the facilities for obtaining alcoholic drinks or at least for obtaining an excess of them. It may be doubted whether legislation will ever succeed in bringing about such a result by a direct method, however desirable it may be. There is a better chance, we venture to say, by encouraging the consumption of light alcoholic liquids—e.g., claret, hock, beer—or if it is wished to ban alcohol altogether, by offering a non-alcoholic beverage which is wholesome and which will appeal successfully to the æsthetic sense. As it is, very few, if any, so-called temperance beverages can compare favourably from the point of view of palatability or of acceptableness in general with malt or grape liquors. And it is curious that several of the temperance beverages which enjoy favour with teetotalers contain an appreciable amount of alcohol. One of the best so-called temperance drinks and one which is quite popular with the non-alcohol adherent, is brewed (or "stone" as it is called) ginger-beer, and this contains, of course, a relatively large amount of alcohol since it is obtained (and its palatable qualities depend upon the fact) by the fermentation of sugar. We have examined some samples of brewed ginger-beer which proved to contain more alcohol than light beer and very nearly as much as is contained in cider. A light or a diluted claret would be less objectionable on the score of alcohol. Some teetotalers in their innocence, while aghast at the idea of drinking a light hock or claret, do not object to ginger-wine which, relatively speaking, is highly alcoholic. It would seem to be a question of nomenclature with such people. If a beverage is called ginger-wine or ginger-beer it appeals to them apparently as a preparation of ginger which is in no way related to things alcoholic. As soon, however, as such classic names as claret, hock, moselle are mentioned, then at once they feel that they are confronted with something that is overwhelmingly alcoholic. This is a great mistake, and a mistake based upon an inexcusable indifference to actual facts. We are convinced that nothing would score more for the temperance cause than the spreading wide the fact that really light wines indulged in moderately may be regarded for all purposes as inoffensive from the point of view of alcohol. Still, an antagonistic feeling to even these beverages of trifling alcoholic strength would be readily excused if something that harmonised better with the good food of a dinner than do a "soda and milk," a "lemon squash," and so forth could be suggested. There is much to be said for the statement made recently by a Member in the House of Commons that one of the chief causes of intemperance was the extraordinary nastiness of temperance drinks.

REGULATIONS DESIGNED TO PREVENT THE SPREAD OF ENTERIC FEVER.

WE have received from Newcastle-upon-Tyne a copy of the Instructions to the Officials on Duty in the Enteric Fever Pavilion of the City Hospital, Walker Gate, prepared by Dr. Henry E. Armstrong, medical superintendent. They are designed for the purpose of preventing the spread of the disease and comprise regulations to be observed by the medical officers, matron, sisters and nurses, probationers, wardmaids, occasional attendants, and visitors. The first regulation enjoins that every official and every friend or visitor to a patient shall, immediately after entering the pavilion and before entering a ward, put on and button up the wrapper provided for the purpose and shall remove it before leaving the pavilion. The second directs that every person entering the pavilion shall without fail each time before leaving the pavilion rinse his or her hands in disinfectant solution and wash them, using the special soap and nail-brush provided for the purpose. The importance of strict observance of this rule by nurses and wardmaids before going to their own meals is emphasised by a note printed in thicker type. The third regulation cautions against inhaling the foul air from beneath the bedclothes or from the patient's breath or evacuations as involving a risk of catching infection by the breath. Friends of the patients are not to be allowed to kiss them or to sit upon the bed. Several regulations are given in regard to the nursing of the patients and especially in reference to the disposal of the stools, vomit, sputum, or other discharges, which are to be at once emptied into the steam steriliser and flushed down. After a patient has used a bedpan the lid is to be at once put on and the whole is to be covered with a carbolic cloth before removal from the ward. All ward sweepings, dust, soiled rags, or other combustible refuse are to be burned. All plates, feeders, knives, forks, cups, and spoons used by or about a patient must be at once cleansed in the steam crockery washer provided for the purpose. Every nurse after handling a patient, a dirty bedpan, or soiled linen is directed to wash and disinfect her hands. A special paragraph is devoted to the prevention of the spread of infection by flies. Nurses are advised to do all in their power to exclude flies from the wards and pavilion generally, and in warm weather all articles of food (liquid or other) are to be kept covered with gauze or other material. No waste food or unwashed utensil of any kind on which

flies may settle is to be left about. The charge nurse is to see that all dirty or soiled linen, towels, napkins, and handkerchiefs are placed in the linen truck immediately after removal from the ward and covered so that flies may have no access to it. These instructions are printed clearly upon a large sheet of paper and certain of the directions are underlined for greater emphasis. The danger of the spread of enteric fever to those nursing or coming into contact with patients is a serious one, though so much disregarded, and the necessity for the strictest care in this regard in hospitals where such cases are received is obvious. The instructions to which we have referred are admirably adapted for the purpose and should prove to be useful and effective.

THE VISIT TO LONDON OF THE MEMBERS OF THE SOCIÉTÉ D'HYDROLOGIE OF PARIS.

WE are pleased to learn from a letter published in our contemporary *Le Journal des Praticiens* that our French *confrères* were much charmed with their visit to England on the occasion of the reception of the Société d'Hydrologie de Paris by the British Balneological and Climatological Society noticed in our last issue.[1] Professor Huchard, who signs the letter, makes use of a pleasing simile. He reminds us that when William I. conquered England in 1066 he brought with him a hair of St. Peter which he received from the Pope Alexander II. This hair, Professor Huchard suggests, remained between the two nations for nearly nine centuries. But His Majesty King Edward VII., the peacemaker, had removed this hair and, in his turn, had conquered France by the establishment of the *entente cordiale*.

OSSEOUS GROWTHS AT THE ELBOW FOLLOWING BACKWARD DISLOCATION OF THE RADIUS AND ULNA.

IN the *Edinburgh Medical Journal* for October, Mr. David M. Greig has called attention to a condition which has only been recognised to any extent since the introduction of skiagraphy—osseous growths at the elbow following backward dislocation of the radius and ulna. The recognition of this condition is of great importance, for a practitioner who is unaware of its existence will, if a case comes under his care after the formation of the growths, probably fall into the error of regarding them as callus the result of a fracture which complicated the dislocation and was overlooked by the surgeon who first saw the patient. Mr. Greig reports three cases. The following is an example. A healthy man, aged 67 years, while descending a steep highway slipped on ice and fell on his left elbow. He did not consider the injury serious though the elbow became swollen and tender but not very painful. While attempting to pull open a stiff drawer he felt something slip in the injured elbow and the joint at once became useless. Severe pain and rapid increase in the swelling rapidly followed. On the eighth day he went to hospital where dislocation backwards of both bones of the forearm was found. Radiography showed no signs of fracture. Under anæsthesia the dislocation was easily reduced. Apparently the fall was followed only by traumatic synovitis and the articular surfaces separated by effusion were not dislocated until the patient tried to open the drawer. For a few hours after the reduction the limb was kept bandaged to the side and then it was merely supported in a sling or left free as the patient desired. Further treatment consisted in fomentations and massage. The patient was not seen for some time and then an unexpected condition was found. He stated that within two months of the reduction gradual stiffness of the joint set in. Thinking that it was due to rheumatism he went to a well-known watering-place where a practitioner of great experience of joint affections took another radiogram and said that a fracture had occurred and had been overlooked. On the patient's return Mr. Greig found the limb at an angle of about 90° with little movement of extension or flexion, though pronation and supination were free. Springing from the quadrilateral area below the coronoid process of the ulna was a mass of bone. In the other two cases the new bone sprang from the same place. Such osseous growths have been described in the *Archives of the Röntgen Ray and Allied Phenomena Journal* during 1905 and 1906, particularly in a paper entitled "On Osseous Formations in and about Muscles due to Injury," by Mr. R. Jones and Dr. D. Morgan of Liverpool. They reported 17 cases and it is significant that 15 refer to dislocations of the elbow. They also collected from various sources 89 cases, in the majority of which the new bone sprang from the front of the elbow and was attached to it. They regard the condition as a traumatic myositis ossificans. But Mr. Greig thinks that a simpler explanation is suggested by what occurs in fractures. Callus is produced by the escape into the surrounding tissues or into the effused blood of bone-forming products from the medulla or periosteum. Mr. Greig thinks callus about these dislocations is produced similarly. The result is also analogous: the excess of callus about a fracture is absorbed, and many writers say that the growths of bone about joints after dislocations or sprains are also absorbed to a great extent, if not entirely. In one of Mr. Greig's cases the injury which caused the effusion and escape of bone-forming cells occurred at the time of reduction of the dislocation, which was difficult as the dislocation was five weeks old. Since this untoward result Mr. Greig has reduced dislocations which are not recent by open operation. He opens the joint by an incision along the inner or outer margin of the triceps and inserts a smooth periosteum elevator between the trochlea and the coronoid. The bones are easily slipped into place without overstretching of the tissues. So far his results have been good.

[1] THE LANCET, Nov. 7th, 1908, p. 1416.

INTERESTING PRESENTATION TO DR. RICHARD CATON.

A VERY pleasing function was enacted at the Liverpool town-hall on Nov. 6th when Dr. Richard Caton (the Lord Mayor of Liverpool) was presented with his bust in marble, subscribed to by all his fellow members of the city council. The ceremony took place in the smaller ballroom and was numerously attended by members of the council, together with a few immediate friends. Sir William Forwood, in making the presentation, alluded in flattering terms to the merits of the retiring Lord Mayor, who, he said, had thrown himself thoroughly into the work, not sparing himself time or thought in promoting the interests of the city and port. It was recognised when the Lord Mayor took office that his year would be one more than usually arduous and responsible, but he had largely exceeded the highest expectations of his zeal and efficiency. He would leave the chair not only with a sense of having done his duty but also having won the highest appreciation for the manner in which he had performed his task. Mr. John Japp (formerly Lord Mayor of Liverpool), in endorsing the remarks of Sir William Forwood, said that the Lord Mayor had long been one of the leading citizens of Liverpool, having given valuable services to the city and University. Whatever position had been occupied by him he had always adorned. It was a great satisfaction to the city council to have been able to command the services of a man of the Lord Mayor's conspicuous ability and high character. Mr. John Utting (the chairman of the hospitals committee)

said that he had the greatest pleasure in adding a few words in support of what had already been so well expressed, and he stated that the collection of the subscriptions by himself (the Conservative Whip) and the Liberal Whip (Mr. Burton Ellis) was a very easy matter. He complimented the Lord Mayor on having secured the affections of the council by the cordial, affable, and absolutely correct manner in which his duties were discharged. The presentation committee learned that the Lord Mayor had already been prevailed upon to sit for his portrait in oils and therefore it was felt that another form of presentation would be more acceptable on this occasion. The inscribed bust was then unveiled amid loud applause. The Lord Mayor feelingly acknowledged the presentation.

A CASE OF APPENDICOSTOMY.

THE operation of appendicostomy is of recent introduction, for it was first performed less than five years ago, and in this country at least it has not received that amount of recognition which we think it deserves. Appendicostomy was introduced by R. Weir of New York; he was about to perform a cæcostomy for amœbic dysentery, and the appendix presented itself in the incision, and the idea occurred to him to attach the distal end of the appendix to the surface and to irrigate the colon through the lumen of the appendix. The operation was successful and the method has been widely employed since, especially in the southern parts of the United States. Some modifications have been introduced. Meyer sutures the base of the appendix to the parietal peritoneum. Tuttle of New York leaves the appendix unopened for four or five days, so that firm adhesions may form between its base and the peritoneum. J. A. Caisler of Memphis prefers to make an "inspection incision" at the upper part of the border of the right rectus in order to see if any abscess of the liver is present; he also applies a purse-string suture round the base of the appendix and two "guy ropes" of fine silk through the distal end of the appendix to relieve the tension during the subsequent irrigations. In nearly all the cases appendicostomy has been performed for dysentery, but C. B. Keetley has had much success in cases of very intractable constipation, where the appendix opening was employed to introduce an aperient daily. In the October number of the *International Journal of Surgery* Dr. J. B. Anderson of Yazoo City, Mississippi, has reported a case in which he performed the operation of appendicostomy for amœbic dysentery. A man, 35 years of age, had suffered from indigestion and diarrhœa for five years. The stools contained mucus, blood, and undigested food and the bowels acted from three to five times a day. He was very wasted and weak and no improvement followed ordinary treatment. Many amœbæ were found in the fæces. It was decided that appendicostomy should be performed. When the abdomen was opened by an incision in the appendix region it was found that there was a contraction of the mesentery of the ileum about a foot from the cæcum. This was freed, so that the bowel was restored to its normal position. The appendix appeared to be healthy, though it was rather small. The meso-appendix was ligatured and the appendix was fixed in the upper angle of the abdominal wound by separate sutures through its peritoneal coat to the parietal peritoneum and to the aponeurosis, and the remainder of the wound was closed. On the fifth day the appendix was amputated slightly above the skin surface. Irrigations were commenced; each consisted of 15 grains of quinine dissolved in a quart of sterile water. In less than a week there was decided improvement, the temperature became normal, and the pulse-rate, which had been 50, rose to 72 per minute. He was put on a liberal diet and he began to sit up on the twelfth day. The irrigations were continued for 19 days and then the appendix was allowed to close, and in three weeks he was able to go out. His improvement was rapid and continuous, and his weight increased until he had gained nearly 30 pounds. When the report was written he was actively at work and he was able to take ordinary diet. The chief danger in these cases is that an abscess of the liver may be present as well and a hepatic abscess complicates amœbic dysentery in about 20 per cent. of the cases.

AN EARLY OPPONENT OF BLEEDING.

BLEEDING in small-pox, the plague, and measles, to mention no other serious ailments, used to be prescribed by many seventeenth-century physicians on the ground that the escaping blood carried away with it "the corruption" of the disease. In the case of small-pox it was contended "the corrupted blood being partly let out, it would be impossible that the afflicted persons should have so many of those deforming pustles, as they otherwise would have had." But, continues the unknown writer from whose "Errors of Phlebotomy Discovered" (1689) our quotation is taken, that blood-letting cannot be "performed without manifest hazard of the patient's life, experience and reason hath shewen, since so many great persons have fell meerly to save a handsome face." Bleeding, in fact, as this early opponent of it contends, tends to carry off the "vital spirits" which accompany the blood, but he agrees with the phlebotomists that though blood-letting may weaken it may also purify. Blood he believes to be locally corrupted, and like other writers of his age, such as Nicholas Culpeper, at times seems to argue as though Harvey's great discovery had never been made or had, at least, led to no deductions. "How shall we know," he asks, "when that vitiated parcel of blood, which we so much seek to remove, has taken up its abode in the inferior parts of the veins of the arm, and in the arteries tending thereto, that we may let it out?" This passage, though apparently admitting the fact that the blood circulates, seems to imply that blood is different in quality in different parts of the body. Later in his essay he seems to see his error here, and he closes with the sound conclusion, which he argues syllogistically, "Therefore to make an end of all, it appears, That the means used to let out bad blood, without removing the efficient cause thereof, is no direct method of healing."

Dr. George Dean, chief bacteriologist at the Lister Institute of Preventive Medicine, has been appointed Professor of Pathology in the University of Aberdeen, to fill the place of Professor D. J. Hamilton who recently resigned.

MOTORING NOTES:

THE OLYMPIA MOTOR EXHIBITION.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

THE seventh exhibition organised by the Society of Motor Manufacturers and Traders opens at Olympia to-day (Friday). The whole of the immense hall, annexe, and spacious gallery are completely filled with the exhibits of over 300 firms, to enumerate which would be practically to compile a directory of the whole of the motor industry. In the main hall and annexe are the cars, while in the gallery tyres, accessories, and the thousand and one odds and ends that can be piled on to a car are to be seen. And this reminds me of a very powerful argument why a medical man should invest in a car, which was recently told me by a medical man's better half. "Oh," said the medical man's wife, "if only my husband buys a car we will be relieved of all worry about Christmas and birthday presents; there are no end of motor odds and ends, tyre testers, clocks, speedometers, rugs, horns, lamps, foot-warmers, &c., which will meet the case for years."

In order to save the time of such *confrères* as may (and I hope many will) visit this show I went over it some days prior to the opening, and now append notes of some of the exhibits which appear to me to be worthy of the special attention of the medical motorist and the embryo medical chauffeur.

The so-called "valveless" engine, which has been adopted by the Daimler Co., is undoubtedly the feature of the show, and crowds thronged round Stand No. 54 to inspect Mr. Knight's bomb; certainly the Daimler Co. in taking up this invention have staggered the motoring trade. It looked as if the motoring profession were excited from the manner they discussed Mr. Knight's paper at the Royal Automobile Club. And yet the present owners of the mushroom valve machine need not, I think, give up or scrap their cars; they have done good work; I know mine have, and, what is more, I think they will continue to do so. Still, the new "Silent Knight" is a pretty piece of machinery. It consists of a cast-iron liner, which is the full length of the cylinder, and has ports for the inlet and exhaust gases cut in it; it moves up and down over the inverted piston and has a wide ring at the bottom to cover entirely the ports at the time of compression and explosion; these sleeves are operated by an eccentric shaft, and as both the sleeves and the cylinders are of cast iron and perfectly machined they work well together and there is neither fear of seizure nor of escape of pressure, though the lubrication is merely by splash. The combustion head is spherical and machined, so there is little likelihood of any deposit of carbon, a common cause of pre-ignition. The only point that struck me is that this engine comes rather late in the day; years ago valves were apt to stick or even fracture at the neck, and when they did so near the mushroom the latter was apt to drop into the cylinder and indulge in a trial of strength with the piston, with the result that at the post-mortem of the motor a cracked piston and a lump of metal with many flats on it would be found. But now that the valves are made from hammered forgings and the guides are so well machined and true, valve troubles can really be said not to exist, and their cure by their suppression, though interesting, is not needed.

At all the Olympia shows, and I have attended them for the past five years, the Humber exhibits, in addition to being the object of great popular interest, have always attracted the medical motorist, and probably this year Stand No. 44 will decide many a medical man to take to an automobile. The new 8-h.p. is quite a novelty and reminds one of the highly successful and still running ten-year-old 5- and 6½-h.p. cars produced by this firm. The engine has two cylinders, and what strikes the eye on raising the bonnet is its compactness and the absence of pipes. Dual ignition is fitted. Lubrication is on the automatic forced feed system, actuated by a small gear-driven pump, which obtains its supply of oil from a large pump situated in the bottom of the crank case. Thus all encumbrances on the dash board are done away with, the crank case is filled with oil, an oil level indicator shows how much is there, and the pump supplies the lubricant to all the bearings. This car is only supplied as a two-seater, and as such with a hood and front shield it appears to be an excellent car for a professional man, and at the price—£215—hard to equal. The other Humbers which will entice the practitioner are the 12-h.p. and the 15-h.p. The former is a late type, slightly improved, of the 10–12-h.p., of which I gave a full account in THE LANCET of April 11th of this year. The landaulette body on the car exhibited has been especially fitted for the profession and everything a medical man is likely to require seems to have been provided for, but Messrs. Humber write that they would esteem any suggestions of how a carriage of this description should be fitted up best to meet a medical man's requirements, so if any reader can think of anything left out perhaps he will communicate with Messrs. Humber.

The Rover Co. are at Stand 57, and in addition to their little 6-h.p. car, which was fully described in THE LANCET of August 22nd and which I really think is an ideal car for a doctor, they show among others a new four-cylinder 15-h.p. car. It looks a likely machine for a man who wants a car capable of carrying four and powerful enough for a landaulette body. Four semi-elliptical springs are employed to support the frame, and this car has an arrangement that should silence the complaint of Mr. Knight about tappet valves being noisy, as here they consist of two plungers, one telescoping into the other, with a spring between them; the upper plunger has a fibre washer and the lower plunger has a ball which rests upon the cam on the eccentric shaft. The usual Rover disc clutch is fitted, but an outside adjustment is provided for the compression spring, and the clutch can be dismantled without having to interfere with any other part, which is really a great advantage. Ignition is by coil and accumulator, and the contact maker is bevel driven by a vertical shaft, and another shaft is provided for driving the magnets in case one is required. Three forward speeds are provided, the top being direct. Water circulation is by a turbine form of pump, and by an arrangement of flanges the stream is thrown between the cylinders and about the exhaust valve pockets. A positive rotary pump is employed for the lubrication. The carburettor is of the Rover type, and by means of a floating piston with ports allows more air to pass as the speed of the engine increases. The live axle is well supported and the brakes seem sufficiently powerful.

The Wolseley Tool and Motor Car Co. are well known to the veteran medical automobilist, as many have used their little 6-h.p. cars with pleasure and success. They were noisy and occasionally their cranks fractured, but for every-day work and general reliability they are unequalled. In fact, I have one now, nearly six years old, but it still does my daily round, and what is more did a journey to Bexhill and back in a day quite recently, so I can with great confidence advise the would-be buyer to halt and closely inspect the cars, which are shown on Stand 47. The 10-h.p. two-cylinder with a short wheel base makes an excellent two-seater, or with the 8 feet 8 inches wheel base it answers for either a town carriage or a four-seater. Ignition is by accumulator and coil. The clutch is a leather-faced cone and connected to the gear box by a universally jointed shaft, while the power is transmitted to the live back axle by a propeller shaft and bevel gearing. Water circulation is by thermo-syphon with an additional air draught by a fan behind the multitubular radiator. The carburettor is of the automatic type. The weight of the chassis is between 12 and 13 hundredweights, so this car should be light on tyres. The company likewise show a light four-cylinder 14-h.p. car, the chassis of which comes out at 14 hundredweights. This is very flexible in traffic, very silent, and is fitted with gate change, magneto ignition, pump lubrication, thermo-syphon water circulation, with extra large water pipes. A new carburettor, giving increased efficiency, has been adopted, and the foot brake on their recent models has been enlarged in diameter and has increased wearing surface.

The Star Engineering Co. has on Stand 95 two very suitable cars for medical men. They are a 10-h.p. two-cylinder and a 12-h.p. four-cylinder. Ignition is by high tension magneto; three forward speeds and a reverse with a gate change are provided, and the drive is by a cardan shaft to a live axle, the driving pinion is carried in ball bearings, and a Dubrille type of lubricator is fitted.

Messrs. Mors also show a chassis of a light 10-h.p. four-cylinder cardan-shaft-driven, which at the price—£260—is certainly worthy of the consideration of those in search of a four-cylinder. The four cylinders are cast *en bloc* and the valves, pump, and high-tension magneto are all on the near side. The carburettor has two jets, the smaller working when the engine runs light; as the throttle is opened this is cut out and the larger one comes into play. The clutch is of the metal to metal kind and lubrication is by pressure off the exhaust.

Among other French makers who turn out suitable cars for the profession the Darracq must not be omitted. They show an 8–10-h.p. two-cylinder two-seater at £175, a 10–12-h.p. two-cylinder, and a 14–16-h.p. four-cylinder, which latter can be had either with a side entrance tonneau body or as a car for town visiting with a brougham body. These are on Stand 73.

On the left, near the Addison-road entrance, at Stand 76, Messrs. Alldays and Onions show their own all-English cars; the two-cylinder model has a 10-h.p. engine and can be had either as a two- or four-seater, while their 14-h.p. has a four-cylinder engine. Semi-elliptic springs are employed for the suspension and the rear ones are hinged to the frame, so that they take the torque as well as transmit the drive to the road wheels. The valves are all on one side, on which is also the carburettor, which is pressure-fed and has a Bowden wire-tickling device brought through near to the starting handle. The radiator is of the gilled tube variety and a pinion-driven

water pump maintains the flow of water. Forced-feed lubrication is provided. Ignition is by battery and coil but there is a bracket on the crank case to receive a magneto which can be driven by a continuation of the pump spindle. A coned leather-face clutch transmits the power to the gear-box and the cardan shaft has a universal joint of the star type at each end. The price for the two-cylinder is £210.

The De Dion Bouton Co. have always specially catered for the profession, and very properly their cars are held in great esteem among us; in fact, I believe over 400 medical men in this country drive De Dions. Their two-seater is an especially smart turn-out. For 1909 they are putting three single-cylinder models on the market, an 8-h.p. fitted with their patent expanding clutch gear, an 8-h.p. with sliding pinion gear and pedal-operated clutch, and a 9-h.p. with double sleeve-type gear and a similar clutch. They all have the cardan-driven live axle, and on the new 8-h.p. the transmission is through a leather-faced cone clutch, and the gear-box is combined with the differential casing.

The Argyll Motor Co. have on view their new 12–14-h.p. Argyll, the feature of which is that the engine and gear-box are contained in one casting, the four cylinders are cast *en bloc* with all the valves on one side, the carburettor is on the other side, and passages cast between the cylinders lead the mixture to the valve pockets. Water circulation is by thermo-syphon. Lubrication is by a gear-driven pump. Three forward speeds are provided, the top being direct by means of a jaw-clutch, and the live axle is a very massive structure, the central casing having neither a horizontal nor vertical joint, the lid being large enough to permit of removal of the crown wheel. Their other model was described in THE LANCET of May 30th.

On Stand 43 the Vauxhall Motor Co. show specimens of their manufacture; they are all four-cylinder 20-h.p., but give 23 on the brake. Their lubricating system is most excellent. At the rear end of the crank case there is an oil pump and by a plunger pump oil is forced into the main bearings and through the hollow crank shaft into the big-end bearings of the connecting rods. The inlet and exhaust valves are mechanically operated and arranged on one side of the cylinders and the cam shafts are driven by spur gearing at the front end of the engine. The valves are hammered from machined forgings and both the inlet and exhaust are interchangeable. The clutch is of the internal metal to metal cone type and the power is transmitted from the gear box to the back axle by a propeller shaft with universal joints at either end.

A car that took my fancy was the Adler, shown by Messrs. Morgan at Stand 138 in the annexe. It is a two-cylinder 7-h.p. vertical engine fitted with magneto ignition, but an accumulator working independently can easily be added. The inlet valves are mechanically controlled and the valve rods are adjustable, so that if any wear does take place they can be adjusted with extreme accuracy and without any trouble. An automatic spray carburettor is used. The clutch is of the metal cone type, and, which is an advantage, it can be taken out without disturbing the gear box. Three speeds forward and the usual reverse are provided; the top speed is direct. Transmission is by cardan shaft to a live axle. The cooling water is circulated by a pinion-driven pump, and a pump is likewise employed for lubrication. The brakes are of the usual kind, one on the driving shaft and internal expanding ones on the back wheels. I understand that with an English "Morgan body" the car is sold at £180, and at that price it seems worthy of the consideration of a medical man in search of a vehicle.

A great many people advocate the four-cylinder car; it is of course quieter, and if of not over, say, 14 h.p., and made with a light body, not very extravagant in regard to tyres, provided that sufficiently large ones are fitted, and prominent among this class of car is the Sunbeam, manufactured by the Sunbeam Motor Car Co., and shown on Stand 46. The frame is of pressed steel; the cylinders are cast and set separately upon the crank chamber. All the valves are on one side and lifted by one cam shaft, which is—and this is an excellent feature—formed solid with its eccentrics. Ignition is by high-tension magneto, and the only criticism I have to make is that I do not like a magneto driven, as theirs is, by a chain; gear driven is, I am sure, better. A very good point is that the crank shaft has five bearings. A leather-faced cone clutch is employed, the gear-box gives four forward and one reverse speed, and the drive from the countershaft to the road wheels is by chains which, as in al the cars made by this firm, run in silent oil-tight cases. Cooling is by thermo-syphon and a very efficient radiator fan is provided. Adjustable ball thrust bearings are fitted to the steering wheel, so wear can be taken up and that decided unpleasantness, play in the steering wheel, absolutely done away with. Powerful brakes are provided, and those who desire a powerful well-built car, and do not mind giving about £425, will, I am sure, find this an excellent machine.

On Stand No. 10 Messrs. Jackson and Co. show their doctor's car. The frame is of pressed steel, machine riveted; the transmission is of the Renault type, with three forward speeds and a reverse, the high speed being direct. The back axle is especially strong, and though they only advise a 14-h.p. engine this axle is built for a 20-h.p. A leather-to-steel cone clutch is fitted and has a spring on the ball race. The radiator and tank are combined and fan-cooled. The pedals are of the push kind and the throttle control is above the wheel. The car is turned out with either a 8–9-h.p. De Dion engine or a two-cylinder 10–12-h.p. Aster or with the latter firm's four-cylinder 14-h.p. engine. A rear seat is provided for the chauffeur and the front seats are roomy and well protected by a front glass and hood. Side doors also help to make this a really comfortable vehicle.

Now that the winter is approaching, the question of either heating the motor house or of running off the water every night has to be decided. If, as is advisable, distilled water is used, running the water off every cold evening is expensive; in addition, if the car is wanted in a hurry it is a delay having to fill up and make sure that there is no air lock; so on the whole, where possible, it is best to keep the temperature in the motor-house up, by either an electric radiator or a protected gas stove and hot-water pipes. Sometimes this is not possible and then the Norton motor stove, which is on view in the gallery at Stand 186, can be employed. It is moveable, is made of planished steel and plated fittings, and costs, according to size, from 15*s.* to 20*s.* These stoves burn a patent fuel and are, I understand, absolutely safe and are allowed by the various insurance companies.

On Stand 259 the Continental Tyre and Rubber Co. show their latest all-rubber three-ribbed non-skid covers. These tyres have not only a very smart appearance, but actually do resist any tendency to skid on wet or greasy roads and in addition are markedly resilient; but those who require a really perfect non-skid should use for the back wheels this firm's red-black rubber steel-armoured cover; these have been greatly improved and the studs are now so fixed that unless undue force is used they cannot become detached. Samples are also shown of their ordinary round treads and their square treads, as well as an extra strong inner tube, which is specially adapted for use with the three-ribbed non-skid.

Among other tyres shown in the gallery are the products of the Dunlop Co., the Gaulois Tyres, Limited, and the Avon India Rubber Co.

It is of paramount importance that the brakes of a car should at all times be reliable and effective, and there is no doubt that accidents are constantly occurring through the failure of the brakes to act, so I am sure all motorists will be interested in a device shown on Stand 298, the Allen-Liversidge Front Wheel Brake. These are of the ordinary band type and work on drums mounted on the front wheels and fixed on the inner side close to the steering pivots. The actuating brake lever on one brake is connected by a steel cable to the actuating brake lever of the other and this passes over a pulley fixed on a sliding projection; when the brake is applied this pulley slides forward on its guide, so tightens the cable, and each band grips its drum. In addition, each flexible member before being attached to its respective brake lever passes round another pulley which is pivoted on an extension of the steering pivot and which is also capable of movement independent of the steering movement; thus a pull on the brake pedal not only actuates each brake simultaneously and evenly but in addition checking and steering can be done at the same time absolutely independently of one another, as the flexible member slides over the pulleys and automatically adjusts itself to the altered position of the wheels without affecting the action of the brake. One of the great advantages that will

result from the employment of these brakes is that they will take the place of the popular but tyre and differential gear wearing differential brake, a brake that does cause severe and unnecessary strain on the driving tyres, and in addition however suddenly they may be applied there is no danger of side slip. I was so impressed with the idea of this front wheel brake that I accepted Mr. Liversidge's invitation to test them. It was luckily an ideal day for such an investigation. It had just rained and the Woolwich-road from the Free Ferry to Greenwich Hospital was like a skating-rink, but though we flew over the tram lines and kept on pulling up dead sharp never once did we skid when the front brakes were used, but with those on the driving wheels it was different. In addition, however fiercely applied, they always stopped the car gently; in fact, there was no jerk, it was like settling into a soft air cushion. Personally, I have always rather objected to brakes worked by cables, but in this case, as they work over pulleys and the cables are sufficiently stout, there seems no likelihood of their fraying, and as medical men have so frequently to stop and as these brakes can easily be fitted to any car, I think they are certainly worthy of the attention of the medical motorist. On the car on which I was taken out the differential brake pedal was used for the front brake and the differential brake was done away with.

The Elastes Co. has in this gallery specimens of its "stuffings," which are excellent substitutes for pneumatic tyres and were referred to in THE LANCET of May 2nd.

A useful device is shown by the Rotax Motor Co. on Stand 195, and if the cold weather sets in it will be a very welcome and almost a necessary accessory. This is a foot-warmer which will go over the floor in front by the driver; it works in connexion with the cooling system and can easily be fitted on any car.

Medical men should not as a rule be pulled up for exceeding the speed limit, as if they transgress it is usually on account of an urgent case. Still, it is occasionally an advantage to have a speed indicator on the car, and an excellent one is shown by Messrs. S. Smith and Son on Stand 185.

Messrs. Gamage have on Stand 199 a variety of most useful accessories for a car—lamps, horns, little electric lamps that can be fitted on to existing paraffin lamps and worked from the accumulators used for the ignition of the car, as well as all sorts of garments for the motorist.

On Stand 197 Messrs. Dunhill have a variety of handy things for the car as well as some practical coats. The coats are excellent for long drives, but I wish some firm could invent a garment as warm but which could be got into and out of a little more quickly by a medical man who drives an open car himself. It is a serious trouble to have to spend five minutes almost at the house of each patient in taking one's wraps on and off, the only other alternative being to drive with an ordinary overcoat and be always more or less half frozen. Messrs. Dunhill also show an auto tyre pump which certainly inflates tyres without labour.

There are a bewildering number of cars shown at the exhibition, and the increase in the number of small four-cylinder cars is particularly noticeable. High-tension magneto ignition is almost universally adopted. It is, of course, impossible to advise as to which is the best car for a medical man. With the experience I have now had during my nearly ten years of motoring I am sure if I had to start over again I would begin with a small single cylinder two-seater fitted with a light Cape cart hood and a mica front wind curtain, and judging from what I saw at the show and the experience I have myself had, as well as the "petrol" talk of motor colleagues and friends, my own choice would rest between a small 6-h.p. Rover, the new 8-h.p. Humber, and a little two-cylinder Star among English cars. The De Dion are excellent, and though, of course, French, a complete stock of all spares are kept at the London branch. Among many others the Adler, Adams, and Alldays and Onions should be mentioned if a four-seater is desired, in addition to the larger cars made by the firms already named. I should inspect the two-cylinder Siddeley as well as their small four-cylinder, also the 10-h.p. and 15-h.p. Napier.

In this article I have given a short account of most of these cars, as well as a few others which I think might interest members of the profession in need of a car. I am sure that if any of the small ones I have especially named be selected, and if the chosen car be properly looked after, the purchaser will never regret the step he has taken, and, in addition, will find it a joy as well as a saving of time and money.

REPORT ON SANITARY MEASURES IN INDIA FOR 1906-07.

(*Concluded from p. 1318.*)

THE report finally enters more into detail on the several matters previously mentioned, including also certain other points not entered upon in the earlier portions. Thus, with respect to the meteorology of the year under review we find that the cold weather lasted longer than usual and that February and March were very wet months in Northern India, the seasonal rainfall being in very large excess. There was a delay in the setting in of both monsoon currents over by far the greater portion of the country, and the rainfall from June to September was in slight defect in the field of the Bay current, but was practically normal in the region usually served by the Arabian Sea current.

Turning now to consider more minutely the question of sickness and mortality during 1906, we see amongst facts noted that only 10 men were invalided for bilharzia hæmatobia in comparison with 23 in 1905, 71 in 1904, and 158 in 1903. The diminution in this disabling disease is a very satisfactory fact. Influenza gave a less admission-rate, in the proportion of 11·4 per 1000 for 1906 as compared with 14·2 per 1000 in 1905. Cholera, as we have seen, showed a considerable increase. The danger incurred by drinking milk or aerated waters in the native bazaars was exemplified by an outbreak at Meiktela, as it was found that the milk supplied to a certain billiard saloon came from a district where cases of cholera had occurred. The infected regiment was quickly moved into camp, thorough measures of isolation and disinfection were undertaken, and the disease at once was checked. Another instance of infected milk having been the source of the disease was shown at Secunderabad, the milk not having been boiled by the native contractors previously to its issue. Small-pox amongst the European troops is seen to have increased consistently during recent years, which is an unfortunate fact, as the disease amongst the larger body of native troops, on the contrary, has not shown augmented returns.

Intermittent fever shows a notable increase amongst all classes. Amongst the Europeans the admissions rose from 111 per 1000 to 176 per 1000. The admission-rates were highest in both European and native troops in the Indus Valley group. A very satisfactory fact to be noted is the greater accuracy in the returns owing to the more frequent use by the medical officers of the microscope. A considerable portion of the sickness formerly ascribed to "ague" is now found to be due to a variety of causes, none of which have any connexion with malaria. These cases are now most frequently returned under the heading of "simple continued fever" and are shown as due (1) to constipation and indigestion, (2) to a too highly nitrogenous diet, (3) to exposure to the sun, and (4) to congestion of the liver. Soldiers recently arrived in the country are most liable to be attacked, whilst most of the admissions occurred not during the malarious season but during the hot dry months of the year. Respecting true malaria, the benign tertian parasite was most usually found, the rarest being the quartan and malignant tertian in the ratios of 80, 13, and 11 per cent. Only those cases are now returned as malaria in which malaria parasites are found in the blood, whilst a real reduction in the admission-rate has been effected by the "after-treatment" now given to patients in nearly all the stations, a nominal roll of these patients being kept at the station hospital, where the discharged patients are required to attend for from six weeks to two months to receive twice weekly a dose of quinine. This dose is from 10 to 20 grains, the larger being the most effective. This method has caused a large decrease in the number of readmissions for relapse. "Mosquito brigades" have been organised in nearly all the stations, the cantonments being mapped out into separate areas, and all collections of water treated with "earth oil" and "pesterine," both of which are cheaper than, and quite as effective as, petroleum. But it was found that in the great majority of instances little or no effect was produced on the mosquitoes and that quinine prophylaxis was the best system. Malta

fever caused seven admissions in the year, as compared with four in 1905, six in 1904, and nine in 1903. The clinical symptoms of this fever were typical and the blood agglutinated the micrococcus Melitensis in a dilution of 1 in 80. Infected goats were probably the cause.

Coming to enteric fever, the report does not enter into the work of the committee of investigation that is pursuing its labours at the Central Research Institute, Kasauli. As to the preventive measures against this fever, which exacts so heavy a yearly toll from our European troops in India, it is well remarked that though obvious yet they are difficult to carry out. We note that it is laid down that every case of enteric fever arises from a previous one and that infection takes place through the mouth, so that the old idea of the "climatic" origin of the disease formerly so much insisted on has no chance of resurrection from its well-deserved grave. Man is the only known host of the bacillus which escapes from him in all the excreta, but especially in the urine and fæces, and the saprophytic life of this bacillus outside the human host is very short. To effect the suppression of the fever the most important factor is to obviate the spread of the living bacillus by the patient, and the best method would seem to be the establishment of a large hospital in the hills where convalescents could be kept till the bacilli were no longer found in the excreta. This, although expensive, is surely a desideratum, considering how materially the sickness, mortality, and loss of service would be diminished. One of the most important conclusions to which recent inquiries have come is that the drinking water plays but a minor part in the dissemination of the fever in India amongst the European troops. And much the same conclusion is shown as regards its conveyance by milk. The reports of the various medical officers show that contact infection, direct or indirect, is the most important factor. This is well evidenced by the histories of cases occurring at Lahore, Cherat, and Nowgong, and several other stations where numerous hospital orderlies were attacked. Another source of infection is by the direct or indirect contact of convalescents and measures to obviate this were taken in all stations. Thus at Rawal Pindi, for instance, the convalescents were sent straight to a convalescent depôt in the hills after their illness and the medical officer concerned holds that the absence of the usual autumnal rise in the prevalence of the fever was due to this measure. One of the great sources of difficulty in limiting the spread of enteric fever is the failure to discover cases at a sufficiently early stage to prevent infection. Instances are mentioned showing how cases due to infection from men not reporting themselves sick at the onset of the disease occurred in Lahore, Mhow, Neemuch, Rawal Pindi, and other stations. Again, other cases are so mild that they would not have been diagnosed as enteric fever had it not been for the agglutination test. An interesting case of infection by direct contact with a bacillus carrier is reported from Kasauli, where the mother of an infected child was found to be excreting large quantities of the specific bacillus in her fæces, although she herself was quite well. She had come into contact with patients suffering from enteric fever at Agra; on arrival at Kasauli she had no symptoms herself except slight looseness of the bowels. She infected a friend and her own child by direct or indirect contact. Other instances are cited showing that infection was contracted in the latrines or by contaminated cooking vessels and food. "Latrine infection" has been greatly diminished by the use of carbolic acid or perchloride of mercury solution instead of dry earth in the latrine pans; this measure also has diminished the number of flies in the latrines. The latter agency was found to have been at work in various stations and still a further agent is incriminated—namely, infected dust. Other agents were infected salads or oysters. Finally, the danger incurred by visiting the native bazaars on the line of march is alluded to. The fact that 20 of the 28 patients who suffered from enteric fever in stations in the Murree Hills were admitted into hospital within 26 days of their arrival illustrates the danger of infection during the annual moves by route march from the plains to the hills. With respect to the ratios of admissions for the year under review and for the preceding five years the record is distinctly encouraging, and the prophylactic measures instituted are meeting evidently with a measurable success. The average duration of a case is now 75 days, a gradual increase being noted every year from 1903 when it was 53 days, this progressive increase in the stay in hospital being due to a more thorough appreciation of keeping convalescents segregated from their comrades in barracks as long as possible. The points that are still to be aimed at are the necessity of the men reporting themselves sick at an earlier stage, the discovery of the mild ambulant cases, and the more perfect recognition of convalescents who are still excreting the bacilli in their fæces and urine.

Amongst other diseases we note that 17 cases of plague with two deaths were recorded amongst the European troops. Dysentery and diarrhœa were more prevalent than in 1905, the admission-rate rising from 13·4 per 1000 in 1905 to 15·2 per 1000 in 1906. With regard to hepatic abscess, there was a history of the association with dysentery in the majority of the cases, and even where no preceding relation of the latter disease could be elicited chronic ulceration of the large intestine was found after death in the fatal cases. With regard to venereal diseases, these continued to show a reduction in the statistics of invaliding and mortality. The decrease is doubtless due to the strenuous efforts put forth of late years by all classes of officers, as well as by cantonment magistrates and by the authorities of the Royal Army Temperance Association, to lessen the annual wastage from this source. The "syphilis register" started in 1904 showed 2947 entries. In 1905 the number was reduced to 1470 and in 1906 to 936—a notable reduction. A great improvement has also taken place in the methods and duration of treatment, every man whose name is now on the syphilis register having to attend hospital once a week for observation for about two years, so that the number of invalidings and deaths must by this measure be reduced. Heat-stroke showed the largest number of deaths at Nowshera Aden, Lahore cantonment, and Multan, and in this way again controverted one of the arguments of the theory of the microbic origin of the disease as to its not being most frequent in the hottest part of India.

With regard to the portion of the report relating to the native troops, a few remarks may be made on the returns for malarial fevers, kala-azar, enteric fever, Malta fever, and the respiratory diseases. With respect to the malarial fevers the admission-rate, which had been steadily falling since 1902, rose from 171 per 1000 in 1905 to 262 per 1000 in 1906. There were very high rates in the Punjab, ranging from 2048 per 1000 in the 29th Mountain Battery at Dera Ismail Khan to 915 per 1000 in the 26th Punjabis. These high rates were partly due to the insufficient use of quinine, and as a consequence to the number of relapses. Mosquito brigades were organised and the lines were fumigated with sulphur. A striking instance of bad sanitation occurred at Deesa where the 119th Infantry had an admission-rate of 1020 per 1000, and the 108th Pioneers one of 923 per 1000. There was a steady and heavy rainfall; the lines were built on the banks of a river which overflows, leaving many stagnant pools in which mosquitoes breed; quinine was administered twice and thrice a week but only in 5 grain doses as a prophylactic. Other examples of the same character are given in the report. There were 10 cases of kala-azar at Abbottabad and Dehra Dun. The Leishman-Donovan bacillus was found in the majority of the cases. This report contains other information which space compels us to pass over, such as that concerning cholera, scurvy, affections of the bowels, and respiratory diseases. It is satisfactory to note that the admission-rate among Goorkhas for tubercle of the lung declined from 6·1 per 1000 in 1905 to 5·2 per 1000 in 1906.

It only remains for us briefly to notice the remarks on plague. The year 1906 was distinguished by a remarkable decline in the mortality from this disease, the number of deaths recorded falling from 1,143,933 in 1904 and 1,069,140 in 1905 to 356,721, the smallest total since 1901. And this lessening of the disease affected the Punjab equally with the other parts of India, a very satisfactory fact seeing that our best recruits are obtained from this province. The relation of the disease to the various districts of India is considered and the section concludes with a summary of the work done by the Plague Commission culled from Major G. Lamb's (I.M.S.) "Etiology and Epidemiology of Plague." All the remarks concerning plague are well worthy of perusal.

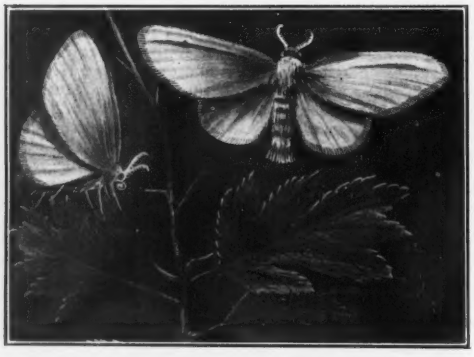
In concluding our review of this interesting report we must congratulate the Sanitary Department in India especially on the valuable results already obtained in reducing the incidence and mortality of enteric fever which has hitherto

been such a veritable scourge to our European troops, on the more thorough treatment of malarial affections, and lastly on the reduction of the admissions for venereal diseases.

CATERPILLAR RASH.

NEVER a year passes that we do not receive from correspondents, both medical and otherwise, accounts of rashes produced by the handling of caterpillars. Not infrequently also specimens of the offending caterpillars are forwarded to us and they are always those of the gold-tail moth, *Liparis auriflua*. Almost any hairy caterpillar will, however, cause a rash in some persons, as, for instance, the caterpillar of the tiger moth, *Arctia caja*, commonly known as a "woolly bear." The processionary caterpillar so common in the south of France is particularly virulent in this way, but fortunately, both for forestry and the welfare of children

FIG. 1.



The gold-tail moth, life size. The colour is satiny white, but the tail tuft is bright yellow.

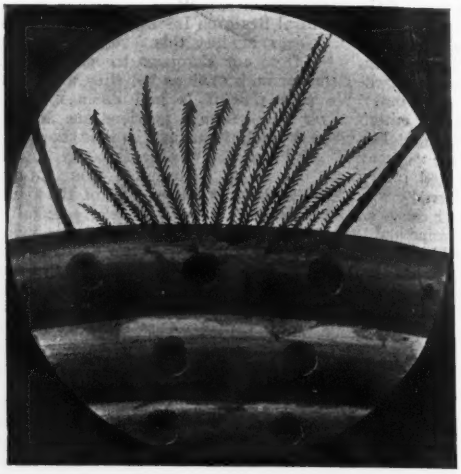
this species at present is not found in England. Nor is this irritating property confined to the lepidoptera, for among the spiders the hairs of the great Mygale, or crab spider, give rise to maddening irritation.[1] But of the lepidoptera the great offender in these islands is the gold-tail caterpillar, whose popular name in the south of England is the "palmer worm." And there is every

FIG. 2.

The larva of the gold-tail moth, slightly larger than life.

reason why it should be in the forefront as a cause of rash. First of all it is very common and may be found in quantities about the month of May on nearly every hawthorn hedge anywhere. Secondly, it is extremely conspicuous, being striped with scarlet, white, and black, and, further, adorned with tufts of hairs, so that children are attracted to pick it up and handle it. The offending organs are the hairs and we publish herewith illustrations of the moth, of the larva, and of the hairs of the latter sticking in the skin of the

FIG. 3.



Magnified view of a finger tip with hairs from the larva sticking in the skin. The size may be estimated by comparing the hairs with the papillary ridges and the openings of the sweat glands.

finger. The illustrations were made from drawings by Mr James Scott.

It should be noted that instances of a rash following the handling of the moth are known. One such is mentioned by a correspondent of *The Country Side* of Nov. 7th, 1908. It would be interesting to know whether the moth to which this correspondent refers had just emerged from the chrysalis. We personally know a medical man who tells us that when he was a boy he handled woolly bears in numbers as well as other hairy larvæ without any ill-effects. Handling the gold-tail caterpillar, however, always produced an acute rash, although handling the moth never did except in one instance, and that was a moth which he had watched escaping from the chrysalis. The hairs of the caterpillar are worked into the cocoon and he thought that probably some of them were adhering to the moth.

[1] Bates: The Naturalist on the Amazon.

MEDICINE AND THE LAW.

An Alleged Case of Food Poisoning.

AN interesting case of alleged food poisoning was heard recently before his honour Judge A. O'Connor, K.C., at the South Shields county court. The plaintiff claimed damages for "personal injuries alleged to have been sustained through partaking of food at the defendant's hotel, such food not being in a fit state for consumption," the amount of the claim—viz., £100—being made up of 15 guineas medical expenses and £84 5*s*. for pain and suffering. The plaintiff stated in evidence that he, in company with a medical man, visited the defendant's hotel for luncheon on August 17th last. He was served with some pressed beef after having partaken of some duckling. He thought the beef had a peculiar taste and mentioned his suspicion to his companion. They together examined the piece of beef from which he was served and both noticed that it was green in the centre and had an extremely bad odour. A few hours later he felt very sick and went home. On the next day he attended at his office but the vomiting returned and he consulted a medical man. His illness lasted for about three weeks. In cross-examination the plaintiff admitted that he never took any breakfast and with the exception of some milk and soda-water he had had no food before luncheon. The medical evidence was to the effect that the plaintiff's

symptoms were such that they might easily have arisen from eating putrescent meat and were consistent with ptomaine poisoning. For the defence it was proved that the meat was pickled soon after the animal was slaughtered and after being in pickle eight days was boiled and pressed and was perfectly good on the next day when it was served to the plaintiff, and in corroboration evidence was adduced to show that the meat was returned on the day following the plaintiff's visit to the hotel to the butcher who had originally supplied it and that what remained of it was subsequently eaten by ten different persons, including the butcher himself, and that not one of these persons suffered from the slightest ill effect. In delivering judgment the judge said he felt bound to come to the conclusion that the plaintiff was served with something that was unfit for food. He objected to the suggestion that it was a very serious matter for the defendant's establishment because it was a thing that might happen in any family or to anybody. He thought the plaintiff was entitled to recover but not the amount of damages asked for. He was entitled to his medical expenses and in addition he would give him a guinea a day for three weeks. Judgment was therefore for the plaintiff for 36 guineas and costs.

An Exhibition of Adulterated Food.

The Chicago correspondent of the *Evening News* announces that in that enterprising American capital, the industries of which are largely connected with the preparation of articles of diet to be consumed elsewhere, there is to be an exhibition of adulterated foodstuffs which have been established as such through the analysis of the State chemist. It is intended to show these side by side with the pure article which the adulteration imitates, and it is quite possible that such an exhibition, if impartially and fearlessly conducted, may prove instructive to the public and profitable to honest manufacturers and dealers. As, however, the spurious exhibit will have been carefully got up to imitate the appearance of the genuine one it may be suggested that it will be found desirable to add instruction as to characteristic appearances readily observable by the eye which may help to distinguish the one from the other. Perhaps also the permission to taste both kinds of food might be found to add useful knowledge to the equipment of the American housekeeper. The exhibition, it is stated, is to be organised by the State Dairy Food Department, and obviously is one which in order to be successful would have to be carried out under official auspices. Private hands conducting such an enterprise would be hampered by the fear of legal proceedings for defamation.

Fraudulent Misdescription of Bacon.

The Bedford Borough Bench had before it recently a case in which the defendant was charged with selling to the prejudice of the purchaser bacon which was not of the nature, substance, and quality demanded. The evidence showed that the defendant was in the habit of attending markets at which he sold bacon and that complaints had been made that in shops at Bedford the prices charged for Denny's Irish bacon were substantially higher than that for which it could be bought at the defendant's stall in Bedford Market. Accordingly an assistant-inspector to the Irish Agricultural Department went to the defendant's stall and asked his son, who was in charge of it, for "Some more of Denny's Irish bacon." In reply he was offered a small side of bacon at 7*d.* and ultimately bought it at 6½*d.* per pound. A representative of Messrs. E. M. Denny and Co. gave evidence that the bacon thus sold was not Denny's brand at all but an inferior quality of bacon altogether, and that the wholesale price of Denny's bacon at the time in question was 8½*d.* per pound. Other evidence in corroboration was given and the defence consisted in a denial by the defendant's son that he had sold the bacon as "Denny's Irish" and an assertion that he had told the inspector that he had no branded bacon on the stall. The bench, however, convicted, upon which the defendant pleaded guilty to two similar offences committed on other dates in respect of which summonses had been taken out. A fine of £10, with £9 6*s.* costs, was inflicted in the first case and of 10*s.*, with £1 7*s.* costs, in each of the other two, with the alternative of one month's imprisonment in the second division. Observations which were fully justified were made in his opening speech by the solicitor for the prosecution as to the unfairness to the local tradesmen, as well as to the purchasers, caused by the sale of inferior bacon at a price with which tradesmen supplying the genuine article could not possibly compete. Viscount Ikerrin, Inspector for Irish Agricultural Interests in Great Britain for the Department of Agriculture for Ireland, was among the witnesses, giving evidence as to the complaints made and as to the steps taken to sift the matter, and it will be observed that his department was instrumental in obtaining the conviction on behalf of the aggrieved trading company.

ROYAL SOCIETY OF MEDICINE.

A SPECIAL meeting of the Fellows of the Royal Society of Medicine was held on Nov. 11th, the subject for debate being

Heredity, with Special Reference to Cancer, Tuberculosis, and Disease of the Nervous System.

Sir WILLIAM S. CHURCH, President of the society, in opening the debate, said that the problem of heredity was well stated by Professor Poulton in his "Essays on Evolution": "How can a single germ cell produce by repeated division an organism in which the somatic units of the parent are reproduced?" The multiplication and reproduction of individuals was carried on by two distinct processes—viz., the sexual, as was the case with a few remarkable exceptions in all the higher organisms, and the asexual, which consisted of the multiplication of individuals by spontaneous or artificial division, which does not include the multiplication of individuals by fission—the reproduction which took place by budding—in some forms of life in which sexual reproduction was the rule; and the results of the experiments of Boveri and R. Hartwig appeared to show that there was no essential difference between the phenomena of sexual and asexual reproduction. More remarkable still were the experiments of Loeb, who appeared to have been successful in developing under certain conditions the unfertilised eggs of sea urchins into normal larvæ, and those of Delage, who from non-nucleated fragments of the ova of certain echinoderms, molluscs, and annelids succeeded, by introducing into these fragments appropriate spermatozoa, in producing normal larvæ. From these experiments it appeared that the presence of a nuclear body, whether it be that of a germ or a sperm cell, was sufficient to start, under certain conditions, growth and development in the ovum substance. According to Darwin, the fertilised germ of one of the higher animals, subjected as it was to so vast a series of changes from the germinal cell to old age, incessantly agitated by what Quatrefages well calls "tourbillon vital," was perhaps the most wonderful object in nature. It was probable that hardly a change of any kind affected either parent without some mark being left on the germ, and that was what had been called in question, and on the answer given depended the conception formed of the problem of heredity. The opinion of Darwin might be taken as representing the view taken of heredity by Darwin himself and his immediate followers, and he suggested his theory of pangenesis as a possible explanation of his views of heredity. Weismann was the head of the new school which held that the germ matter of plasm was continuous from one generation to another, and from it the germ cells of each generation were successively derived, the germ cells being endowed with a potentiality for variation within certain limits which could be called forth by an appropriate environment. That opinio that acquired characters were not transmitted was no new one; it had been held by some ever since anthropology had been studied in a scientific manner, and no one had expressed it more clearly than Sir William Lawrence, who said that in all changes which were produced in the bodies of animals by external causes the effect terminated with the individual; the offspring was not in the slightest degree modified by them. Racial differences could be explained only by two principles: the occasional production of an offspring with different characters from those of their parents, as a nature or congenital variety, and the propagation of such varieties by generation. Darwin had set forth some of the difficulties which existed in accepting either the theory of pangenesis or that of the continuity of the germ plasm as an explanation of heredity. Sir William Church said that he was unable himself to see on what evidence the assumption of a specific difference between germ plasm and somatic matter was made. It was clear, granting that germ plasm was distinct from somatic matter, that it must be present in all parts of an

organism that were in a state of growth, and it appeared to him as reasonable a hypothesis to assume that germinal matter could be secreted or extracted from body matter as that it was continuous in its growth and periodically gave origin to germ cells. The question was, With which theory did the facts best agree? Continuing, Sir William Church said that he would not express an opinion on these different views, nor would he venture to enter on the subjects of mutatism or Mendelism, but he said that the various facts on which Mendel's laws were based were known to Darwin, although Darwin did not work out the numerical proportions of the variations which he noted. Weismann himself had suggested that oscillation of nutrition in the soma plasm might cause variations in the germ plasm. If that were granted it appeared to admit the possibility, if not the probability, of heredity in disease. No disease which arose from, or was associated with, the presence of a foreign body, whether living or dead, within them could be considered hereditary, yet it was a general view among breeders of stock that a tendency existed to varying kinds of microbic disease in certain strains of blood which rendered them an easier prey to the specific micro-organisms causing disease than other strains of the same breed; in other words, they afforded a more favourable home for the invading organism than did other families of the same stock. There were other forms of disease which, according to present knowledge, arose from disordered metabolism within themselves; and the question to-day was how far the presence of these disorders could be ascribed to heredity, or were they acquired through forces acting on the individual affected. Chemical analysis of tissues and their secretions yielded little or no information and bio-chemistry was as yet in its infancy. The difference between the various enzymes or ferments present in their bodies could not be shown by analysis of their component atoms, but how great were their differences of action! They did not at present know how far these differences in their action might modify the rest of the body, but the connexions which appeared to exist between disease of the thyroid gland and myxœdema or between an abnormal condition of the pituitary body and acromegaly and gigantism were examples of how greatly the whole body might be influenced by abnormality in the function of glandular organs. Dr. A. E. Garrod, in his Croonian lectures this year, had drawn attention to the complex nature of what he termed "inborn errors of metabolism," and showed how increasing knowledge had modified the belief that oxidation was the sole agent in the metabolism of the component tissues of their bodies and that the chemical changes which occurred in them depended to a great extent on special enzymes which acted on the various constituents of their bodies; he had also brought forward some evidence to show that certain errors in metabolism, such as cystinuria, alkaptonuria, and albinism, appeared to run in families, and suggested that further research might determine how far their manifestation might be in accordance with Mendel's laws. Immunity from diseases was connected with bio-chemical changes in their bodies and as yet no explanation had been given why toxins and poisons acted differently in different species, as was seen, for example, in the action of morphine, atropine, and strychnine. Further, what grounds were there for thinking that a race could acquire immunity from attacks of microbic or other disease? Was the diminution of the frequency and mortality of phthisis which had been steadily taking place in this country for many years wholly due to improved sanitation and treatment, or was it commencing to die out owing to the acquirement of a measure of immunity by the race? To what were the diminution and extinction of leprosy in this country due? They could hardly ascribe it entirely to improved conditions of life. Moreover, different epidemics of disease, such as small-pox, measles, and scarlet fever, differed greatly in their severity. Was this due to the greater or less influence of the invading organisms or to a changed condition of the bodies invaded? Those were questions which, unlike the problem of life, they might hope that research might throw light on. Cancer was very generally, and still was by many, considered as a typical example of a hereditary disease, but strong reasons had been adduced to show that this belief was not based on such sure grounds as was supposed. The most marked character which distinguished cancerous from normal growth was the exuberance of cell multiplication, and the nearest analogy to cancer in animals that they found in the vegetable kingdom appeared to be in the growth of galls. He hoped to hear from some cytologist how far the growth and development of the cells which formed them had been studied, and how far the changes in their mode of growth resembled those met with in animals; and also how far the special form of irritation present might, in connexion with their site, determine the form and structure of the growths. Darwin was under the impression that the stimulus to growth was due in most cases to poison inserted with the ovum by the ovipositing insect; but later researches had shown that it was not the deposition of the ovum which was the determining cause of the hypertrophy which occurred, but that it was due to the embryo when hatched. The cells of the plant actually pierced by the ovipositing insect appeared to die, and beyond the formation of a layer of cork round them little or no change took place in the surrounding tissues until the embryo was hatched; thus growing cells of the most varied description were formed with extraordinary rapidity, and assumed a specific shape and character which were not always determined by the structure of the part affected; different, although closely allied, species of gall-producing insects might cause galls with different and easily recognised peculiarities on the same leaf. Nevertheless the form and structure of the gall appeared to depend rather on the constitution of the protoplasm affected than on the stimulus afforded by the presence of an insect. Was it unreasonable, when they considered the wonderful action of these minute embryos—probably through some ferment secreted by them—on vegetable tissues, to suppose that some similar process might take place in cancer—some innate error of metabolism, altering or forming some enzyme and causing a proliferation of cell growth, its activity being called forth by some accidental irritation? The fact that mice in whom an inoculated tumour had been absorbed acquired immunity from further inoculation with tumour tissue appeared to support that view, as did also the fact that the injection of normal mouse blood or of mouse embryo skin emulsion also conferred on mice a certain measure of immunity from cancer inoculation. There was no class of disease in which the conviction that they were hereditary was more firmly fixed than in regard to many forms of diseases of the nervous system. To say that epilepsy, insanity, hysteria, and other neuroses were not inherited, but depended on the inheritance of a constitutional peculiarity, originating as a germinal variation which might manifest itself in different ways, appeared to be a distinction without a difference. Further research and carefully recorded family histories were wanted before they could tell how far these various neuroses might be interchangeable or what might be the condition which determined the presence of any particular group of nervous symptoms. The epileptiform attacks in guinea-pigs whose nervous system had been traumatically injured had undoubtedly been transmitted to their descendants.

Sir WILLIAM R. GOWERS said that there was one class of disease from which they might hope for some facts. Though these maladies were not primarily of the nervous system they often affected it gravely. They consisted of deranged chemical processes in the vital laboratory of the human frame, giving rise to endogenous toxins. One saw them in the nerve disturbance which occurred in diabetes, probably due to other material incidental to that by which the excess of sugar was produced, whether or not it was the same as that which often caused death. The heredity of diabetes was familiar, but its thorough study was a difficult task. A child not seldom suffered before a parent. The endogenous poisons of what they called gout were certainly many, and some also occurred without that constitutional state. Both kinds might cause symmetrical symptoms in the extremities, but of their nature they knew nothing. It could not be doubted that the processes of the body were largely influenced by heredity. The cases of disease of the nervous system in which the influence of heredity was marked seemed to fall in certain classes. One of those consisted of the early abiotrophies. He proposed that term some years ago as a convenient designation for the cases in which certain systems of structure in the nervous or muscular system have an essential defect of vital endurance in consequence of which their life slowly failed. A marked example was presented by the hair follicles of the scalp, in consequence of which early and extensive baldness occurred in father and son. The muscles were not usually considered part of the nervous system although they presented a close relation to it in intimate structure and function. They might take

the most typical form of pseudo-hypertrophic paralysis as a convenient instance of the heredity of the abiotrophies. A second class might include the hereditary maladies which begin later in life, after the period of growth was over. They presented persistent disturbance of function and were commonly hereditary, but from either side. In the so-called heredo-ataxy of Marie the symptoms begin about 30, and were usually fatal in about 20 years. A third class of diseases in which heredity was operative consisted of the so-called functional affections. Some of them varied extremely in degree and baffled attempts to group them so as to discover their relation to heredity. Such were hysteria and the defective nerve strength which might manifest themselves in varied ways, and which they were all drawn, sometimes against their better judgment, to designate "neurasthenia." Other functional disorders, such as chorea and neuralgia, had relations too complex for the clear discernment of heredity; while migraine, defined as it was, was connected with quite different constitutional states from disease of the nervous system. Two forms of functional diseases had been much studied in relation to heredity, epilepsy and insanity. He found that in the cases which he had seen in private there was a family history of one or both, in 47 per cent. in antecedents, and present or past collaterals. Taking into consideration certain difficulties, the assumption was justified that at least 50 per cent., and probably more, really presented a family tendency. Among hospital patients the number was not more than 35 per cent. In the figures presented the percentage was taken from 2400 cases, of which 600 were seen in private. Heredity was ascertained in 39 per cent. of 1193 males and 43 per cent. of 1207 females. Of the total cases in which inheritance was paternal the father himself suffered in 40 per cent., when maternal the mother suffered in only 36 per cent. When epilepsy itself occurred in a parent it was the father who was epileptic in 49 per cent. of the cases, the mother in 51. The cases with insanity in a parent were only one-third the number with parental epilepsy. Of the cases with parental insanity the father was insane in 37 per cent., the mother in 63. One effect of heredity was to increase the female cases. Where it was absent the excess of males amounted to 4 per cent., but in cases with heredity the same excess was presented by females. That was partly due to the fact that inheritance was more frequently from the mother's side by 13 per cent.

The discussion was continued by Mr. W. BATESON (Cambridge), Dr. G. H. SAVAGE, and Dr. F. W. MOTT, an account of which we hope to publish in a future issue. The discussion was adjourned to Nov. 18th.

THE HENRIQUES OPERATING THEATRE AT ST. MARY'S HOSPITAL.

St. Mary's Hospital has recently benefited by a gift of great utility from the widow of the late Mr. Frederick Henriques. In memory of her husband she has presented a complete equipment of fittings and instruments for the new operating theatre in the Clarence Wing, which our representative has been given an opportunity of inspecting. The theatre is on the second floor of the building and can be entered through the anæsthetic room or directly from the corridor. The walls are covered with white glazed tiles from the terrazo floor to the ceiling, which is coated with a washable white paint. The source of light is a large north-west window of corrugated glass occupying the greater part of one wall; this can be swung open in panels to admit of the airing of the room but is constructed in a dust-proof manner. Beneath the windows are two teak benches with white tiled fronts, protected by enamelled iron rails, for onlookers. The room is heated by radiators and has bottom and top grating ventilators, the latter being connected with an outside shaft at the top of which is a powerful electric exhaust fan. Above the head of the table is an electric pendant containing transformers of high and low resistance for cauteries and "-oscopy" lamps and plugs for head- or hand-lamps. Another pendant electrolier supplies light for the table and is fitted with emergency gas-burners. The basins have hot and cold foot-taps and the water is delivered through large roses. The table, by Messrs. Down Bros., is of simple and effective construction and allows of the various positions being readily obtained during an operation. It is heated by tanks under the patient. The table is served by two white metal ward trollies. The aseptic glass tables and metal stools are of an equally good design. A dozen Schimmelbusch's drums for dressings are included in the equipment. The sterilising-room, which leads from one corner of the theatre and is shut off from it by a door, contains steam sterilisers for dishes and instruments and a device for the hot storage of lotions which is, we believe, new. It consists of a metal cupboard heated by steam pipes at the back and bottom and closed by a door sliding on rollers. This cupboard contains shelves on which are stored all requisite lotions in large glass jars, which are sterilised in another department and then stored in the cupboard where they can be kept at any required temperature up to about 80° C. until they are wanted. At the opposite corner of the theatre is the instrument room, equipped with a large and very handsome glass cabinet by Messrs. Weiss and Son, containing a complete instrumental armamentarium for general and special surgery, noteworthy features of which are a beautiful set of lithotrites and solid silver catheters and tracheotomy tubes, which in the long run prove the most economical. Another cupboard contains urethroscopes, cystoscopes, sigmoidoscope, bronchoscope, cauteries, head-lamps, and other accessory apparatus. A tablet on the wall of the theatre commemorates this munificent gift of its original equipment "In Memory of Frederick Gutteres Henriques."

Looking Back.

FROM

THE LANCET, *SATURDAY*, Nov. 13th, 1830.

We cannot omit to notice some facts connected with the use of the stethoscope, which are of the utmost practical importance, and which the authors explain in a masterly manner.[1] The first is, the occasional disappearance of hepatization without the occurrence of the "crepitus" of resolution. The second respects the sonorous rale, and is of the deepest practical importance. In several cases of the worst catarrhal fever, while the patient was in a semi-comatose condition, nothing is often observable by the stethoscope during ordinary respiration, though a loud sonorous sound is heard upon a deep respiration. Where the fever, however, is on the wane, when convalescence is setting in, and the patient in every respect improved, then a loud sonorous rale is heard even in ordinary respiration, owing to a diminution of inflammatory action, and not to its increase, as an inexperienced stethoscopist might readily imagine.

The great modifications which laryngeal affections create in the stethoscopic evidence of pulmonary disease, is made the subject of lengthened observations. A singular phenomenon is also noticed of the formation of temporary tumours on the percussed parts of the chest in tubercular phthisis. Some cases of phthisis are alluded to, in which the pulse was full and slow, contrary to that state of quickness which, by many authorities, is even considered as diagnostic of the disease. A case is also cited, in which, notwithstanding the destruction of the greater part of the lungs, the calorific functions were increased in activity. Finally, a most extraordinary instance of malformation is described, in which the stomach lay within the thorax, above the diaphragm, and completely beyond the reach of its contractions. Vomiting occurred continually during the patient's illness, "a fact," as they observe, "worth a thousand experiments, and which *completely decides the question that vomiting may be produced by the action of the stomach itself, unassisted by any external compressing force*, notwithstanding what Le Gallois and late physiologists have said to the contrary."[2]

[1] The authors of the joint report were Dr. Graves and Dr. Stokes physicians to the Meath Hospital.

[2] Excerpt from Dublin Hospital Reports and Communications in Medicine and Surgery, vol. v. Dublin: Hodges and Smith, 1830. 8vo. Pp. 631.

Public Health.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of Nottingham.—Dr. Philip Boobbyer reports that the behaviour of enteric fever in Nottingham varies but little year by year except in so far as details of distribution and concentration are concerned, a fact which he ascribes to the circumstance that the dominant cause of the endemicity of the disease—the conservancy system of the disposal of excrement—remains unaltered. There are still 36,697 pail closets in the city and although during 1907 steel pails have been substituted for wooden ones and better methods of scavenging have been introduced the defects which are still associated with the pail system suffice to exercise their baneful influence, more particularly in hot and dry weather. The moral side of the pail system is, Dr. Boobbyer thinks, bad, in that it fails to inculcate habits of cleanliness and decency. During 1907 there were 231 cases of enteric fever notified or an attack-rate of 0·897 per 1000, a lower rate than Nottingham has—except on one occasion—reached. Dr. Boobbyer gives for 1887 to 1898 the average incidence of enteric fever on houses with pail-closets, privy middens, and water-closets. In the case of the first there was one case of enteric fever in 120 houses, in the privy midden houses one in 37 houses, and in the water-closet houses one case of enteric fever in 558 houses. It is difficult to understand how, in the face of these figures gathered together by Dr. Boobbyer through so many years, the corporation can still hesitate to introduce the water-carriage system. With reference to deaths from tuberculous diseases Dr. Boobbyer points out that there is a comparatively narrow range of variation in the total number of deaths from tuberculous diseases year by year. The sex incidence of the disease appears to vary markedly, the death-rate of industrially occupied males being 2·41 per 1000 males so engaged, and that upon the females so engaged being only 0·86 per 1000. Dr. Boobbyer does not discuss the causation of this disparity. In Nottingham, as doubtless elsewhere, the bulk of the victims of pulmonary tuberculosis belong to the working classes, as is shown from the fact that no less than 81 per cent. of all the deaths from this disease in Nottingham during 1907 occurred in houses with a rental of 6*s.* per week or under, and 98 per cent. in houses of 8*s.* rental or under. Truly pulmonary tuberculosis is largely a class malady. In October, 1907, it was decided to make use of certain buildings near the Bagthorpe Hospital for the exclusive accommodation of phthisical patients able and willing to pay 10*s.* 6*d.* a week, a provision which is apparently being greatly appreciated. The covered corridors of the fever hospital in which the patients suffering from scarlet fever are almost in the open air are used for all markedly severe cases of the disease, more especially when they are of a septic or complicated nature. Dr. Boobbyer has never seen any evil consequence accrue from this course and the patients do better under these conditions than in the wards. The fatality rate from diphtheria treated in the fever hospital in 1907 was 9·0 per cent., a higher rate than in the two previous years. The higher rate is ascribed to increased severity of type, since antitoxin treatment was commenced earlier in 1907 than in any previous year. Dr. Boobbyer draws attention to the low fatality of diphtheria amongst adults. During the past decennium there have been 659 adults attacked, the fatality rate having been 2·6 per cent. The lethal chamber provided by the corporation for the destruction of dogs and cats seems to be a success and it is reported that the animals on entering the lethal chamber appear to fall asleep suddenly in quite a painless fashion.

The County of Cornwall.—It is difficult to ascertain the authorship of the report of the sanitary committee of the county council, but it would appear that the author is not a medical officer of health. The population of the county is estimated at 322,705, although it is doubtful how far this number actually represents the population. As regards deaths from zymotic diseases the report makes the somewhat ambiguous statement that "compulsory notification tends to the reduction of the mortality from infectious diseases" because in 1907 out of 223 deaths due to one or another of the zymotic diseases 167 were due to three diseases—measles, whooping-cough, and diarrhœa—which are not compulsorily notifiable. The inference drawn seems hardly justified by the facts furnished, since in order to warrant it it would be necessary to show not only that the deaths from the non-notifiable diseases are greater than amongst the notifiable, but that the death-rate from this latter class was greater in pre-notification days than has been the case since. The average death-rate from "phthisis" during the last five years was 1·35 per 1000, but we are told that a considerable proportion of this rate is made up by the deaths of miners who come back from South Africa to die. This is no doubt true, and it has also to be remembered that a not inconsiderable amount of the "phthisis" which develops in Cornwall is due to tin mining, although it is uncertain how much of this disease is really tuberculous. Recent work suggests that a very large proportion of it is so.

The City of Wakefield.—Dr. Thomas Gibson states that he has for several years collected data with the object of ascertaining to what extent the removal of cases to the fever hospital influences the spread of scarlet fever. In his opinion the facts so far collected justify the conclusion that hospital isolation does not materially affect the prevalence of the disease. He has found that scarlet fever does not as a rule invade the poorest houses but the better working-class dwellings wherein home isolation can often be secured. He finds that secondary cases are almost as likely to occur when patients are removed to hospital as when they are left at home, but he recognises that the numbers with which he has been dealing are small. Wakefield has for the last four years exhibited a very low mortality from enteric fever, a fact which the medical officer of health is inclined to attribute largely to the pure water-supply and to the substitution of the water-carriage system of the disposal of excrement for that of the conservancy system. Only one case was during 1907 associated with the consumption of shell-fish. In some general remarks relative to the control of pulmonary tuberculosis Dr. Gibson makes the following very statesmanlike observations:—

> If we are to deal successfully with consumption there is one thing we must always bear in mind and it is this. The consumptive must not be made to feel himself a social leper, he must not be subject to unnecessary restrictions (he is only dangerous when he is careless), but he must be met with kindly and practical assistance and encouraged to avail himself of the means for recovery and educated in the measures for preventing the infection of others. If we adopt this attitude of sympathy and helpfulness the working man or woman in the early stages of the disease will be far more likely to seek medical advice and to avail themselves of this means of recovery which under a strict *régime* would be avoided and only sought as a last resource. I have always advocated compulsory notification of cases of phthisis, but at the same time I can see that compulsory notification would do more harm than good unless it is enforced in a most considerate manner and at the same time associated with tangible means of practical help, a sanatorium above all things.

Dr. Gibson has evidently thought out his subject well

County Borough of St. Helens.—Dr. John J. Buchan furnishes some data in his current report as to infantile mortality in relation to infantile insurance. During 1907 out of 1930 births inquired into 1556 were insured at 1*d.* a week and 20 at 2*d.* a week, while 354 were not insured. The proportion of infants insured in St. Helens is, the medical officer of health thinks, over 81 per cent., an exceptionally high proportion considering the nature of the lives at risk. The amount received in the case of death where the weekly premium has been 1*d.* varies from 15*s.* to £3, according to the length of time during which the policy has been in operation, and Dr. Buchan finds it difficult to believe that the practice can have any result in increasing the death-rate among infants. He adds, however, that although insurance is to be recommended as a matter of prudence it is to be feared that in many cases the belief that the child is likely to die is the motive underlying the insurance, such belief being suggested by neighbours or by small insurance agents. Dr. Buchan points out, when dealing with the subject of the St. Helens milk depôt, which has been in existence since 1899, that the sanitary authority has never ceased to advocate breast-feeding, which in St. Helens has markedly increased, so much so, indeed, that in 1907 there were, he states, not more than 300 infants being artificially fed, of whom 119 were fed from the milk depôt. The children over two weeks old who were taken to the depôt were from 1 to 2 pounds lower in weight than the average baby in St. Helens. These are interesting facts, as also is the statement that the babies fed on depôt milk in their first month of life lost on the average about

7 ounces in weight during the first month of feeding, in the second month of feeding they gained some 14 ounces, and in each succeeding month from 1 to 1¼ pounds. A baby put on depôt milk when over a month old shows no decrease in weight during the first month of feeding, rapidly gaining weight in succeeding months. A baby of two months old when first put on depôt milk begins to gain weight at once. These data are, so far as we are aware, new and hence they are well worth recording.

County Borough of Devonport.—The water-supply of Devonport during 1906 was transferred from a water company to the corporation and important improvements are in process of being made. The supply is obtained from the upper reaches of certain Dartmoor streams and conveyed by gravitation for nearly 24 miles in an open leat to the reservoir at Roborough. The danger of these long open leats is well known, and by the provisions of the Devonport Corporation (Water) Act, 1906, this length of the open leat will be reduced by nearly seven miles, a fact which in itself goes far to justify the acquisition of the waterworks by the corporation.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8599 births and 4683 deaths were registered during the week ending Nov. 7th. The annual rate of mortality in these towns, which had been equal to 13·8 and 15·3 per 1000 in the two preceding weeks, declined again slightly to 15·0 in the week under notice. During the first six weeks of the current quarter the annual death-rate in these towns averaged 14·0 per 1000, and in London the mean rate in the same period did not exceed 13·3. The lowest annual death-rates in these towns last week were 6·0 in West Hartlepool, 6·3 in Willesden; 7·3 in Hornsey, and 7·7 in Hastings; the rates in the other towns ranged upwards, however, to 21·9 in Walsall, 22·9 in Stockport, 24·3 in Burnley, and 31·6 in Merthyr Tydfil. In London the death-rate during the week was 15·1 per 1000. The 4683 deaths from all causes in the 76 towns showed a decrease of 81 from the number returned in the previous week, and included 470 which were referred to the principal epidemic diseases, against 521 and 567 in the two preceding weeks; of these 470 deaths, 189 resulted from diarrhœa, 99 from measles, 73 from diphtheria, 41 from "fever" (principally enteric), 38 from scarlet fever, and 30 from whooping-cough, but not one from small-pox. The deaths referred to these epidemic diseases during the week were equal to an annual rate of 1·5 per 1000, against 2·0, 1·7, and 1·8 in the three preceding weeks; in London the death-rate last week from these diseases did not exceed 1·3 per 1000. No death from any of these epidemic diseases was registered last week in Brighton, Northampton, West Hartlepool, Hastings, Barrow-in-Furness, or Burton-on-Trent; the annual death-rate therefrom, however, ranged upwards in the other towns to 4·1 in Rochdale and in Tottenham, 5·0 in Huddersfield, 5·1 in Stockport, and 6·5 in Rotherham. The 189 deaths attributed to diarrhœa in the 76 towns showed a further decline of 122 from the number in the previous week and were fewer than in any week since the end of July; the highest annual death-rates from this disease during the week were 2·5 per 1000 in Wolverhampton, Stockport, and Rotherham, and 3·1 in Preston. The fatal cases of measles, which had increased during the six preceding weeks from 31 to 80, further rose to 99 in the week under notice; they caused death-rates equal to 2·4 in Leicester, 2·5 in Stockport and in Rotherham, 2·9 in Tottenham, 3·0 in Middlesbrough, and 3·9 in Huddersfield. The 67 deaths from diphtheria also showed a further increase upon recent weekly numbers; the highest death-rates from this disease were 1·2 in Rochdale, 1·4 in South Shields, 1·5 in Bournemouth, 2·0 in King's Norton, and 2·3 in Bootle. The 41 deaths referred to "fever" showed a decline of three from the number in the previous week, and included 17 in London and its suburban districts, and two each in Liverpool, Sheffield, Hull, Rhondda, and Devonport. The 38 fatal cases of scarlet fever showed a slight further increase, including 13 in London and its suburban districts; while those from whooping-cough had further declined and were fewer than in any previous week of this year. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily increased in the eight preceding weeks from 2855 to 3833, had further increased to 3852 on Saturday, Nov. 7th; the number of new cases of this disease admitted to these hospitals during the week under notice was 512, against 378 and 507 in the two preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 159, 225, and 266 in the two preceding weeks, further rose to 276 in the week under notice, but were 27 below the corrected average number in the corresponding week of the five years 1903–07. The causes of 43, or 0·9 per cent., of the deaths registered last week in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death during the week were again duly certified in Leeds, Bristol, West Ham, Hull, Newcastle-on-Tyne, and in 47 other smaller towns; the 43 uncertified causes of death included, however, six in Liverpool, five in Birmingham, five in Gateshead, three in Rhondda, and two in Bootle.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 12·4, 13·3, and 16·2 per 1000 in the three preceding weeks, declined again to 15·4 in the week ending Nov. 7th. During the first six weeks of the current quarter the annual death-rate in these eight towns averaged 14·1 per 1000, and slightly exceeded the mean rate during the same period in the 76 English towns. Among the eight Scotch towns the death-rate during the week under notice ranged from 9·9 and 10·5 in Leith and Aberdeen to 16·3 in Glasgow and in Perth, and 22·3 in Dundee. The 543 deaths in the eight towns showed a decrease of 27 from the number returned in the previous week, and included 55 which were referred to the principal epidemic diseases, against 53 and 71 in the two preceding weeks; of these 55 deaths, 29 resulted from diarrhœa, 10 from diphtheria, six from "fever," six from whooping-cough, and four from scarlet fever, but not one either from measles or from small-pox. These 55 deaths were equal to an annual rate of 1·6 per 1000, which exceeded by 0·1 the mean rate from the same diseases in the 76 English towns. The deaths attributed to diarrhœa in the eight Scotch towns, which had been 31 and 34 in the two preceding weeks, declined in the week under notice to 29; they included 12 in Glasgow, six in Dundee, four in Aberdeen, three in Edinburgh, and two in Greenock. The 10 fatal cases of diphtheria showed a decline of one from the number in the previous week; seven were recorded in Glasgow and one each in Edinburgh, Aberdeen, and Paisley. Of the six deaths from whooping-cough fewer by six than the number in the previous week five occurred in Glasgow. All the six deaths referred to "fever," an increase of one upon the number in the previous week, were returned in Glasgow; four were certified as enteric and two as cerebro-spinal meningitis. The four fatal cases of scarlet fever, within one of the number in the previous week, included two in Edinburgh and one each in Leith and in Glasgow. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 56 and 86 in the two preceding weeks, further rose to 116 in the week under notice, and exceeded by 22 the number returned in these towns in the corresponding week of last year. The causes of 21, or 3·9 per cent., of the deaths registered during the week in the eight towns were not certified; in the 76 English towns during the same week the proportion of uncertified causes of death did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 16·0 and 20·4 per 1000 in the two preceding weeks, further rose to 23·8 in the week ending Nov. 7th. During the first six weeks of the current quarter the death-rate in the city averaged 18·7 per 1000, whereas the mean rate during the same period did not exceed 13·3 in London and 12·7 in Edinburgh. The 180 deaths of Dublin residents during the week under notice showed a further increase of 26 upon the numbers in the two previous weeks, and included 15 which were referred to the principal epidemic diseases, against 11 and nine in the two preceding

weeks. These 15 deaths were equal to an annual rate of 2·0 per 1000; the rate from these diseases during the same week did not exceed 1·3 in London and 0·9 in Edinburgh. Of the 15 deaths from these epidemic diseases in Dublin last week, six resulted from diarrhœa, three from "fever," three from measles, two from whooping-cough, and one from diphtheria, but not one either from scarlet fever or from small-pox. The fatal cases of diarrhœa, which had been four in each of the two previous weeks, rose to six last week. The 180 deaths from all causes during the week included 35 of infants under one year of age and 52 of persons aged upwards of 60 years; both these numbers showed a further considerable increase upon those in recent weeks. Eight inquest cases and five deaths from violence were registered, and 73, or 40·5 per cent., of the deaths occurred in public institutions. The causes of all but one of the 180 deaths in Dublin last week were duly certified; in London the causes of all but one of the 1388 deaths were certified; while in Edinburgh the proportion of uncertified causes of death was so high as 8·3 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeon: E. Cooper to the *President*, additional, for three months' course at West London Hospital. Staff-Surgeon: L. Kilroy to the *Diana*, on recommissioning. Surgeons: G. P. Adshead to the *Diana*; W. H. Edgar to the *Victory*, additional, for disposal, to be lent to the *Sapphire II.*; E. L. Atkinson, C. J. Aveling, S. Bradbury, G. A. Bradshaw, D. H. C. Given, J. M. Hayes, and F. H. Stephens to the *Vivid*, additional, for disposal; A. T. Rivers, G. W. M. Custance, and A. L. Robinson to the *Pembroke*, additional, for disposal; P. B. Egan and R. M. Riggall to the *Wildfire*, additional, for disposal; J. S. Austen to the *Victory*, additional, for disposal, to be lent to Haslar Hospital; and A. R. Fisher to the *Victory*, additional, for disposal, to be lent to the *Vernon*.

ROYAL ARMY MEDICAL CORPS.

Captain W. L. Baker has been appointed for duty in Ireland as Specialist in Ophthalmology, vice Captain J. J. W. Prescott, D.S.O., who has been selected for the appointment of Adjutant in the Territorial Force. Lieutenant-Colonel H. M. Sloggett has been appointed to the medical charge of the Connaught Hospital, North Camp, Aldershot, vice Lieutenant-Colonel W. Rowney, who has retired from the service. Lieutenant-Colonel M. T. Yarr, R.A.M.C., who recently returned from India, has been appointed to the medical charge of the Isolation Hospital at Aldershot, vice Lieutenant-Colonel H. M. Sloggett. Captain W. D. C. Kelly has been posted to the Connaught Hospital, Aldershot, for duty.

TERRITORIAL FORCE.

Yeomanry.

Lancashire Hussars: The undermentioned officer from the Lancashire Hussars Imperial Yeomanry is appointed to the regiment, with rank and precedence as in the Imperial Yeomanry (dated April 1st, 1908):—Surgeon-Captain John Tawse Nisbet.

Royal Horse Artillery.

Shropshire: The undermentioned officer from the Shropshire and Staffordshire Royal Garrison Artillery (Volunteers) is appointed to the battery, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Captain George Mackie.

Royal Field Artillery.

4th West Lancashire (Howitzer) Brigade: The undermentioned officer from the 4th Lancashire Royal Garrison Artillery (Volunteers) is appointed to the brigade, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel Thomas Frederic Young. 1st Welsh (Howitzer) Brigade: The undermentioned officers from the 1st Glamorganshire Royal Garrison Artillery (Volunteers) are appointed to the brigade, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Captain David Arthur Davies and Surgeon-Captain Francis Griffith Thomas. 4th Welsh Brigade: The undermentioned officer from the 1st Monmouthshire Royal Garrison Artillery (Volunteers) is appointed to the brigade, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Lieutenant John O'Keefe.

Royal Garrison Artillery.

East Lancashire: The undermentioned officer from the 8th Lancashire Royal Garrison Artillery (Volunteers) is appointed to the unit, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel Arthur Richard Hopper.

Infantry.

4th Battalion, The King's Own (Royal Lancaster Regiment): Surgeon-Captain Richard John Morris, from the 1st Volunteer Battalion, The King's Own (Royal Lancaster Regiment), to be Surgeon-Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). 5th Battalion, The King's (Liverpool Regiment): The undermentioned officers from the 1st Volunteer Battalion, The King's (Liverpool Regiment), are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Captain Keith Waldegrave Monsarrat and Surgeon-Captain George Burton Robinson. 8th (Irish) Battalion, The King's (Liverpool Regiment): The undermentioned officer from the 5th (Irish) Volunteer Battalion, The King's (Liverpool Regiment), is appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Captain John Maurice Ahern. 10th (Scottish) Battalion, The King's (Liverpool Regiment): The undermentioned officers from the 8th (Scottish) Volunteer Battalion, The King's (Liverpool Regiment), are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Major Charles John Macalister and Surgeon-Lieutenant David Moore Alexander. 5th Battalion, The Lancashire Fusiliers: The undermentioned officers from the 1st Volunteer Battalion, The Lancashire Fusiliers, are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Major Robert Mitchell (since deceased), Surgeon-Major Arthur Peel Nuttall, and Surgeon-Captain James Will Cook. 5th Battalion, The East Lancashire Regiment: The undermentioned officer from the 2nd Volunteer Battalion, The East Lancashire Regiment, is appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Captain Richard Langford FitzGerald. 4th Battalion, The Border Regiment: The undermentioned officer from the 1st (Cumberland) Volunteer Battalion, The Border Regiment, is appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Major William Symington. The undermentioned officer from the 2nd (Westmorland) Volunteer Battalion, The Border Regiment, is appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel George William Brumwell. 4th Battalion, The Prince of Wales's Volunteers (South Lancashire Regiment:) The undermentioned officers from the 1st Volunteer Battalion, The Prince of Wales's Volunteers (South Lancashire Regiment), are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Major Joseph Adams and Surgeon-Lieutenant William Joseph Collins. 5th Battalion, The Prince of Wales's Volunteers (South Lancashire Regiment): Surgeon-Lieutenant Ralph Richardson Brunskill from the 2nd Volunteer Battalion, The Prince of Wales's (South Lancashire Regiment), to be Surgeon-Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908). 4th Battalion, Loyal North Lancashire Regiment: The undermentioned officers from the 1st Volunteer Battalion, The Loyal North Lancashire Regiment, are appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Captain John William Rigby and Surgeon-Lieutenant Frederic Thomas Walmsley. 5th Battalion, The Manchester Regiment: The undermentioned officer from the 1st Volunteer Battalion, The Manchester Regiment, is appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel William M. Roocroft. 6th Battalion, The Manchester Regiment: The undermentioned officer from the 2nd Volunteer Battalion, the Manchester

Regiment, is appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Major George Henry Darwin. 7th Battalion, The Manchester Regiment: The undermentioned officer from the 4th Volunteer Battalion, The Manchester Regiment, is appointed to the battalion, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Lieutenant John Crawhall Nichol.

Royal Army Medical Corps.

Surgeon-Lieutenant-Colonel Bruce Goff, Retired List (Volunteers), from the Honorary Colonelcy of the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), is appointed to the Honorary Colonelcy of the Royal Army Medical Corps in the Lowland Territorial Division, with precedence as in the Volunteer Force (dated April 1st, 1908).

1st North Midland Field Ambulance: James Davison Allen to be Lieutenant (dated Oct. 4th, 1908).

3rd Welsh Field Ambulance: Surgeon-Captain David Llewellyn Davies, from the 2nd Volunteer Battalion, The Welsh Regiment, to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Surgeon-Lieutenant William Alfred Thomas Lloyd, from the 1st (Pembrokeshire) Volunteer Battalion, The Welsh Regiment, to be Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908). Lieutenant David Brynmor Chiles-Evans, from the Gloucester and Somerset Bearer Company, Royal Army Medical Corps (Volunteers), to be Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908). Daniel Edward Evans to be Lieutenant (dated June 25th, 1908). Ernest Brice to be Lieutenant (dated June 25th, 1908). George David Edwardes Jones to be Lieutenant (dated July 7th, 1908). Joseph Cresswell Higman is appointed Quartermaster, with the honorary rank of Lieutenant (dated July 7th, 1908).

For attachment to Units other than Medical Units:—The undermentioned officers from the Volunteer Force are appointed to the corps in the ranks specified, with precedence as in the Volunteer Force (dated April 1st, 1908):—To be Lieutenant-Colonels: Surgeon-Lieutenant-Colonel Thomas Horrocks Openshaw, C.M.G., from the Lincolnshire Imperial Yeomanry; Surgeon-Lieutenant-Colonel Murdo Mackenzie and Surgeon-Lieutenant-Colonel John Munro Moir, from the Highland Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant-Colonel Edward Bass Reckitt, from the 1st Lincolnshire Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant-Colonel William Robert Sewell, from the 1st Renfrew and Dumbarton Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant-Colonel William Mearns, from the 1st Durham Royal Engineers (Volunteers); Surgeon-Lieutenant-Colonel Charles Cormack Greig and Surgeon-Lieutenant-Colonel Walter Smith Cheyne, from the 2nd Volunteer Battalion, The Gordon Highlanders; Surgeon-Lieutenant-Colonel Robert Morrison Wilson, from the 3rd (The Buchan) Volunteer Battalion, The Gordon Highlanders; Surgeon-Lieutenant-Colonel Alexander Nicol, from the 4th (Donside Highland) Volunteer Battalion, The Gordon Highlanders; Surgeon-Lieutenant-Colonel George Cran, from the 5th (Deeside Highland) Volunteer Battalion, the Gordon Highlanders; Surgeon-Lieutenant-Colonel Alexander Duncan Fraser, from the 4th (Stirlingshire) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders); Surgeon-Lieutenant-Colonel Duncan William Currie, from the 7th (Clackmannan and Kinross) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders).

To be Majors:—Surgeon-Major David Durran, from the 1st Caithness Royal Garrison Artillery (Volunteers); Surgeon-Major David Todd, from the 2nd Durham (Seaham) Royal Garrison Artillery (Volunteers); Surgeon-Major David Middleton Greig, from the 1st Forfarshire Royal Garrison Artillery (Volunteers); Surgeon-Major James Duncan Farquharson, from the 1st Newcastle-on-Tyne Royal Garrison Artillery (Volunteers); Surgeon-Major (Honorary Captain in the Army) Alexander Butler, from the 1st Renfrew and Dumbarton Royal Garrison Artillery (Volunteers); Surgeon-Major Hugh Ransom Bramwell, from the Tynemouth Royal Garrison Artillery (Volunteers); Surgeon-Major William Sinclair, from the 1st Aberdeenshire Royal Engineers (Volunteers); Surgeon-Major William Henry Brown, from the Tyne Division (Electrical Engineers) Royal Engineers (Volunteers); Surgeon-Major William Crump Beatley, from the 3rd Volunteer Battalion, The Northumberland Fusiliers; Surgeon-Major Samuel Lodge, from the 2nd Volunteer Battalion, The Prince of Wales's Own (West Yorkshire Regiment); Surgeon-Major James Harvey, from the 2nd Volunteer Battalion, Alexandra, Princess of Wales's Own (Yorkshire Regiment); Surgeon-Major William Mabson Gabriel, from the 3rd Volunteer Battalion, The Duke of Wellington's (West Riding Regiment); Surgeon-Major James Scott Wilson, from the 2nd Volunteer Battalion, The South Staffordshire Regiment; Surgeon-Major Robert Stirling, from the 4th (Perthshire) Volunteer Battalion, The Black Watch (Royal Highlanders); Surgeon-Major Robert Ebenezer Beveridge, from the 3rd (Sunderland) Volunteer Battalion, The Durham Light Infantry; Surgeon-Major Andrew Paige Arnold, from the 5th Volunteer Battalion, The Durham Light Infantry; Surgeon-Major George Williamson, from the 1st Volunteer Battalion, The Gordon Highlanders; Surgeon-Major John Osbert Wilson, from the 4th (Donside Highland) Volunteer Battalion, The Gordon Highlanders; Surgeon-Major James Taylor, from the 6th Volunteer Battalion, The Gordon Highlanders; Surgeon-Major Alexander Leitch, from the 1st (Renfrewshire) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders); Surgeon-Major Hugh Colligan Donald, from the 2nd (Renfrewshire) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders); Surgeon-Major Duncan McMillan and Surgeon-Major John Ritchie, from the 5th Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders); Surgeon-Major David Robert Oswald, from the 7th (Clackmannan and Kinross) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders). Captain Alexander C. Miller to be Major (dated May 15th, 1908).

To be Captains: Surgeon-Captain William Tweed Hannah, from the Derbyshire Yeomanry; Surgeon-Captain James Anderson Taylor and Surgeon-Captain David Mitchell Macdonald, from the Scottish Horse Imperial Yeomanry; Surgeon-Captain David Johnston Penney and Surgeon-Captain Thomas Harvey Thomson, from the 1st Argyll and Bute, Royal Garrison Artillery (Volunteers); Surgeon-Captain William Gray, from the 4th Durham Royal Garrison Artillery (Volunteers); Surgeon-Captain William Atkinson Taylor and Surgeon-Captain Horace Crakenthorp Colman, from the 1st Forfarshire Royal Garrison Artillery (Volunteers); Surgeon-Captain George Wilson, from the Highland Royal Garrison Artillery (Volunteers); Surgeon-Captain Lewis Walter Pockett, from the 1st Lincolnshire Royal Garrison Artillery (Volunteers); Surgeon-Captain John Cromie, from the Tynemouth Royal Garrison Artillery (Volunteers); Surgeon-Captain Hugh Dickie, from the 1st Volunteer Battalion, The Northumberland Fusiliers; Surgeon-Captain Louis Petro Demetriadi and Surgeon-Captain Henry William Williams, from the 2nd Volunteer Battalion, The Duke of Wellington's (West Riding Regiment); Surgeon-Captain David Walker, from the 3rd Volunteer Battalion, The Duke of Wellington's (West Riding Regiment); Surgeon-Captain William Edward Foggie, from the 3rd (Dundee) Volunteer Battalion, The Black Watch (Royal Highlanders); Surgeon-Captain William Haig, from the 4th (Perthshire) Volunteer Battalion, The Black Watch (Royal Highlanders); Surgeon-Captain Edward Ley Paton, from the 5th (Perthshire Highland) Volunteer Battalion, The Black Watch (Royal Highlanders); Surgeon-Captain Edgar Harold Brunt, from the 1st Volunteer Battalion, The Prince of Wales (North Staffordshire Regiment); Surgeon-Captain William Byron Milbanke, from the 3rd (Sunderland) Volunteer Battalion, The Durham Light Infantry; Surgeon-Captain Selby Wetherell Plummer, from the 4th Volunteer Battalion, The Durham Light Infantry; Surgeon-Captain John Cameron and Surgeon-Captain Richard Brodie, from the 1st (Ross Highland) Volunteer Battalion, Seaforth Highlanders (Ross-shire Buffs, The Duke of Albany's); Surgeon-Captain Donald Graham Campbell, from the 3rd (Morayshire) Volunteer Battalion, Seaforth Highlanders (Ross-shire Buffs, The Duke of Albany's); Surgeon-Captain John Farquhar Christie, from the 1st Volunteer Battalion, The Gordon Highlanders; Surgeon-Captain Andrew Fowler, from the 2nd Volunteer Battalion, The Gordon Highlanders; Surgeon-Captain James Middleton, from the 3rd (The Buchan) Volunteer Battalion, The Gordon Highlanders; Surgeon-Captain Robert Rannie

and Surgeon-Captain William Gordon Mitchell, from the 5th (Deeside Highland) Volunteer Battalion, The Gordon Highlanders; Surgeon-Captain Thomas Alexander Sellar, from the 6th Volunteer Battalion, The Gordon Highlanders; Surgeon-Captain John Fordyce Robertson, from the 7th Volunteer Battalion, The Gordon Highlanders; Surgeon-Captain Alexander Cameron Miller, from the 1st (Inverness-shire Highland) Volunteer Battalion, The Queen's Own Cameron Highlanders; Surgeon-Captain John Barr Stevens and Surgeon-Captain James Cowe Herbertson, from the 2nd (Renfrewshire) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders); Surgeon-Captain John Gilfillan Ronald, from the 4th (Stirlingshire) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders); Surgeon-Captain James Pearson Brown, from the 5th Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders); Surgeon-Captain Edmund Eustace Dyer, from the 7th (Clackmannan and Kinross) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders).

To be Lieutenants: Surgeon-Lieutenant James Graham Miller, from the 4th Battalion, Northumberland Fusiliers; Surgeon-Lieutenant Alan Leonard Smith Tuke, from the Fifeshire and Forfarshire Imperial Yeomanry; Surgeon-Lieutenant John Leach and Surgeon-Lieutenant Alexander George Lovett-Campbell, from Lovat's Scouts Imperial Yeomanry; Surgeon-Lieutenant Andrew Currie and Surgeon-Lieutentant John Stewart, from the 1st Argyll and Bute, Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant Alan Ayre-Smith, Surgeon-Lieutenant William George Thompson, and Surgeon-Lieutenant Frank Wilfred Burn, from the 1st Durham Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant Alfred Augustus Beeks, from the 2nd Durham (Seaham) Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant Lloyd Turton Price, from the 1st Forfarshire Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant William Jenner Best, from the 1st Lincolnshire Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant Wilfred Ernest Alderson, from the 1st Newcastle-on-Tyne Royal Engineers (Volunteers); Surgeon-Lieutenant Alfred Lees Low, from the 1st Orkney Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant Francis William Squair, from the 1st Renfrew and Dumbarton Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant William Edwyn Falkingbridge Tinley, from the 1st East Riding of Yorkshire Royal Garrison Artillery (Volunteers); Surgeon-Lieutenant Frederick Philip, from the Aberdeenshire Royal Engineers (Volunteers); Surgeon-Lieutenant David Henderson Weir, from the 1st Durham Royal Engineers (Volunteers); Surgeon-Lieutenant Henry Smurthwaite, from the 3rd Volunteer Battalion, The Northumberland Fusiliers; Surgeon-Lieutenant Henry Stanley Walker, from the 3rd Volunteer Battalion, The Lincolnshire Regiment; Surgeon-Lieutenant Robert Hugh Gilbert-Bruce, from the 2nd (Angus) Volunteer Battalion, The Black Watch (Royal Highlanders); Surgeon-Lieutenant Edward Fox MacLeod Neave, from the 3rd (Dundee Highland) Volunteer Battalion, The Black Watch (Royal Highlanders); Surgeon-Lieutenant William Duncan, from the 2nd Volunteer Battalion, The Sherwood Foresters (Nottinghamshire and Derbyshire Regiment); Surgeon-Lieutenant Alexander Charles Farquharson, from the 2nd Volunteer Battalion, The Durham Light Infantry; Surgeon Lieutenant Frederick Keiller Smith, from the 1st Volunteer Battalion The Gordon Highlanders; Surgeon-Lieutenant William Cockburn, from the 2nd Volunteer Battalion The Gordon Highlanders; Surgeon-Lieutenant James Nicol and Surgeon-Lieutenant Edward Oliphant, from the 4th (Donside Highland) Volunteer Battalion, The Gordon Highlanders; Surgeon-Lieutenant Alexander Cruickshank, from the 5th (Deeside Highland) Volunteer Battalion, The Gordon Highlanders; Surgeon-Lieutenant Andrew Brown Murray, from the 6th Volunteer Battalion, The Gordon Highlanders.

Lieutenant William L. Martin to be Captain (dated April 6th, 1908), Hugh Kirbell Lacey to be Lieutenant (dated April 10th, 1908), James Law Brownridge to be Lieutenant (dated May 4th, 1908), William Arthur Valentine to be Lieutenant (dated May 14th, 1908), Lieutenant James B. Jamieson to be Captain (dated May 19th, 1908), Frederick Ernest Stokes to be Lieutenant (dated May 19th, 1908).

THE WEST AFRICAN MEDICAL STAFF.

The Secretary of State for the Colonies has appointed a departmental committee to inquire into the duties, organisation, emoluments, and selection of officers of the West African Medical Staff. The committee will be composed of Mr. H. J. Read, of the Colonial Office (chairman); Dr. Theodore Thomson, of the Local Government Board; Mr. W. H. Langley, principal medical officer of the Gold Coast; Dr. J. Kingston Fowler; and Mr. A. Fiddian and Mr. H. C. W. Verney, of the Colonial Office. Mr. J. R. W. Robinson, of the Colonial Office, will act as secretary to the committee.

SYPHILIS IN UGANDA.

As the result of the report on the prevalence of syphilis in Uganda by Colonel F. J. Lambkin, R.A.M.C., the following officers of the Royal Army Medical Corps are proceeding to that Protectorate at an early date on special duty under the Colonial government: Captain W. M. B. Sparkes, R.A.M.C., Lieutenant H. T. Treves, R.A.M.C., and Lieutenant G. J. Keane.

Correspondence.

"Audi alteram partem."

A SERUM TREATMENT FOR CARCINOMA IN MICE.

To the Editor of THE LANCET.

SIR,—It is with great regret that I find myself obliged to question certain statements made by Dr. W. Blair Bell, published in THE LANCET of Oct. 31st, p. 1300. I had hoped that his reflections upon the work done in this laboratory would not have appeared in print and that I should not have been obliged to deal with them publicly. This regret is the greater because, as far as my knowledge goes, he has no other first-hand experience of cancer in mice than that acquired during the time he was working in this laboratory as a guest, with about two dozen cancerous mice given to him by me. His statements deal with the results of experiments conducted in this laboratory with two serums obtained from rats and injected into certain mice with well-developed carcinomatous tumours.[1] He states definitely that the work cannot be regarded as "original or new," because Jensen in 1901 obtained immunisation in mice with mouse tumour cells, which result has since been confirmed by the work of Borrel, Clowes, the staff of the Imperial Cancer Research Fund, and by many others. He also states that "immunisation with *testis serum* had been done by Borrel and Bridré and undoubtedly by others. ..... All the work done tended to show that it was comparatively easy to produce immunisation against mouse tumour in a certain percentage of cases by a variety of means, and almost as easy to produce curative effects."

What has been done in the way of immunisation may be summarised as follows. Mouse-tumour cells, emulsions of mouse's liver, spleen, embryonic, and other tissues have been injected into normal mice. The mice so treated have been found to be immune in varying degrees when subsequently grafted with tumours that had been proved to be transmissible under ordinary conditions from mouse to mouse. Mice were also immune after the injection of blood corpuscles, but *not* after the injection of serum.[2] Borrel and Bridré injected mice with mouse's testis and found that mice so treated were *not* rendered immune to subsequent graftings.[3] These experiments all deal with the immunisation of mice beforehand to tumours that were subsequently introduced, and have no bearing upon the treatment of already existing and well-established tumours. I did not refer to them, because my experiments had nothing to do with immunisation, but were confined to tumours that were already in an advanced stage of development. Only one of

[1] THE LANCET, Sept. 12th, p. 797, and Oct. 31st, p. 1299, 1908.

[2] Ehrlich: Zeitschrift für Ärztl. Fortbildung, 1906. Michaelis: Soc. Med. Int. Berlin, 1907, in Deutsche Medizinische Wochenschrift, 1907. Borrel et Haaland: Compte-Rendus Soc. Biologie, 1905. Schöne: Münchener Medizinische Wochenschrift, 1907. Bashford: Scientific Report of the Investigations of the Imperial Cancer Research Fund, 1906–07.

[3] Borrel et Bridré: Le Problème du Cancer, par le Dr. A. Borrel, Paris, 1907.

these immunisation experiments was made with a "serum," and that produced negative results. Borrel and Bridré did not use a "testis serum," but mouse's testis, and obtained negative results.

The experiments antecedent to my own with regard to the effects of various sera upon cancer in mice may be briefly summed up as follows. Where the serum treatment has been commenced at the same time as that at which the mice were grafted with the tumours the results have generally been contradictory. In the case of Jensen the results contradicted each other and were quite indefinite. In the results published conjointly by Gaylord, Clowes, and Baeslack the percentage of successful graftings was reduced in the case of mice treated with the serum of mice that had recovered spontaneously from cancer. This result has been also obtained by other observers. Borrel obtained a higher percentage of successful grafts in mice treated with the serum of a sheep injected with mouse cancer than in those treated with normal sheep's serum, and his lowest percentage of successful grafts was with mice not treated with any serum at all. With the serum of a chicken injected with mouse tumour he was also unsuccessful. The same sera possessed *no curative effect whatever upon already existing tumours.*[4] None of these experiments are really similar to mine in nature, and the results are quite different. I was referring to these experiments when I stated that I attributed the success of my own to the fact that whatever substance was produced in the sera must be produced in relation to living cells and that this condition had not been fulfilled in previous experiments. The cells of the mouse carcinoma given to this laboratory by Professor Ehrlich live in the rat for about three weeks. The cells of the testis of the mouse live in the rat for several days at least. It was for this reason that I chose the rat in working with mouse tumours. Borrel in referring to his failures with serum says, "it is possible that the choice of the animal furnishing the serum may be of great importance" and that such attempts as his should not be discontinued on account of antecedent failures.

As Dr. Bell stated at the meeting when my paper was read that many other workers had done the same experiments as myself and had obtained the same results, it is impossible for me, as his statements have been published, to let them pass unquestioned. In justice to the laboratory, to those who have helped me in carrying out the work, and to myself, it is necessary for me to make it clear, particularly to the members of the Liverpool Medical Institution, who have always treated me with the greatest courtesy and kindness, that no member of the staff of the Liverpool Cancer Research Laboratory has deliberately attempted to pass off second-hand goods in the guise of new. Dr. Bell gives no exact references and unless he can produce others beyond those I supply him with here, I must come to one of three conclusions: that he has misunderstood the writings of the gentlemen he quotes; that he has misunderstood my paper; or that he has misunderstood both. I would recommend to his notice "Le Problème du Cancer," by Dr. A. Borrel (whose name and works Dr. Bell quotes so freely), published first in the *Bulletin de l'Institut Pasteur*, and now issued in the form of a small book by Masson et Cie., 120, Boulevard Saint-Germain, Paris. In it he will find an excellent bibliography, an up-to-date account of the recent experimental work on cancer in mice, and a confirmation of my opinion with regard to Ehrlich's tumour with which his personal experience, "the result of many necropsies," made in the Liverpool Cancer Research Laboratory, has led him to disagree.

I am, Sir, yours faithfully,

CHARLES WALKER.

Cancer Research Laboratory, University of Liverpool,
Nov. 4th, 1908.

THE PLIGHT OF EARLSWOOD ASYLUM.

To the Editor of THE LANCET.

SIR,—The wholly exceptional position in which the board of management of the Earlswood Asylum find themselves, through sheer misfortune, induces us to ask to be allowed specially to bring the subject before your readers.

In October, 1903, it was revealed, owing to fissures and subsidences in various parts of the extensive buildings, that these, although on a clay soil, had originally (some 60 years ago) been erected without any adequate foundations, besides being weak in construction throughout. Professional advice was at once called in, with the result that there was found to be no alternative to undertaking forthwith a complete system of underpinning, and strengthening of the roofs and floors, refacing of the outer walls, and in many parts entire rebuilding. For five years the board have in consequence been straining every effort to meet a situation of probably almost unprecedented difficulty in endeavouring to save this great charity from destruction.

It was in some quarters even suggested that it might be necessary to contemplate entirely rebuilding the institution, the cost of which would have been beyond all visible resources, while there would have been no possibility of housing our inmates and staff during the process, and although it has become evident, as stated in the last annual report, that a sum much larger than was at first calculated on will first and last be required to restore the buildings, the entire outlay will not exceed about two-thirds of the amount that would have been required to erect new buildings of similar extent and accommodation. Over £43,000 have been already expended, raised partly by the generous help of friends and subscribers, but more largely still by the realisation of all available securities and by the sale for building purposes of a 24 acre field. There remains, however, a sum of not less than £40,000 still to be raised, quite outside ordinary maintenance expenditure; while it is brought painfully home to the board that the special help received has not been without a prejudicial influence upon our ordinary income from regular contributions, having largely consisted of diverted ordinary income.

The board now find themselves at the end of their resources for the completion of this vast undertaking. The works have for the last 12 months been stopped for want of funds, while large portions of the structure are only saved from collapse by temporary timber supports, and one wing, occupied by some 120 epileptic inmates, will most probably during the coming winter be vacated, temporary housing accommodation in that case having to be provided. The recent report of the Royal Commission on the Feeble-Minded bears abundant testimony to the national importance of institutions such as Earlswood, the first of its kind, for the care of this helpless and unfortunate class of the community, while the beneficent and unremitting work which for more than half a century has been there carried on and its present position entitle, we venture to believe, this noble charity, of which the late Queen Victoria and our present gracious Sovereign have been patrons throughout its existence, to claim special aid and sympathy in these circumstances of exceptional distress and misfortune.

May we earnestly express the hope that with this view, you, Sir, will grant us the favour of inserting this statement in your columns?—We are, Sir, yours faithfully,

E. C. P. HULL, J.P.,
Chairman, Board of Management.
E. A. GRUNING, F.R.I.B.A.,
Honorary Consulting Architect.
G. H. SAVAGE, M.D.Lond., F.R.C.P.Lond.,
Honorary Consulting Physician.

Earlswood Asylum Offices: 36, King William-street, E.C.
Secretary, Mr. H. Howard.
Nov. 6th, 1908.

PS.—Subscriptions received by all branches of the Union of London and Smith's Bank.

THE CONSTITUTION OF THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editor of THE LANCET.

SIR,—Thousands object to women qualifying for general practice, but the question was settled in their favour years ago, and now the Universities of Oxford and Cambridge are the only two medical qualifying bodies who do not admit women to their degrees or diplomas. As women are admitted to other qualifications there can be no solid reason why they should be excluded from the Royal College of Surgeons of England and the Royal College of Physicians of London. Many who voted against their admission to the Royal College of Surgeons voted thus, I believe, to mark their disapproval of women entering the surgical profession at all. The willingness of many Fellows to allow women to become Members

[4] Jensen: Biologisk Selskabs Forhandliger, 1901–02; Hospitalstidende, 1902; Centralblatt für Bakteriologie, 1903. Gaylord, Clowes, and Baeslack: Journ. Exper. Med., 1906. Borrel: Bulletin de l'Institut Pasteur, Tome V., Nos. 12 to 15, 30 juin–15 août, 1907.

but not Fellows has roused feelings and caused comments to be made not very complimentary to the Fellows. In the opinion of many the Council of the Royal College of Surgeons of England made a great mistake in obtaining a post-card poll when they did not mean to abide by the result if adverse to their own views.

Professor Howard Marsh in the second section of his communication to your columns deals with the question of Members being represented on the Council. Personally I have always felt that, as Fellows must first be Members, the subject was not worth bothering about. The only point of importance to my mind is that the Council are practically always consultants and hospital surgeons, who only know the difficulties of Members in general practice by hearsay, and the cry has long existed that the material welfare of Members, alias general practitioners, is ignored by the Council. Professor Marsh definitely admits this to be the case when he writes that many Members consider the Council "ought to concern themselves with ethical questions and with the relations of the Members to the official public, so that Members could look for their countenance and support in the difficulties and disadvantages which they so frequently have to encounter." Section XVI. of the By-laws runs: "The Council will at all times protect and defend every Fellow and Member of the College who may be disturbed in the exercise and enjoyment of the rights, privileges, exemptions, and immunities acquired by him as a Fellow and Member or Member thereof."

Professor Marsh writes that the position is one the Council cannot by any possibility accept. If that be so, why invite men and women to become Members of, and pay fees to, a College not prepared to carry out the by-laws issued and which may reasonably be considered as an inducement to seek Membership? I believe this neglect of an active interest in the protection of the interests of Members is one of the chief causes of Members desiring representation on the Council. Whether the proportion of Members' seats, if granted at all, should be a sixth or a fourth should be of little importance, as the Fellows in actual voting could always swamp the Members, but Professor Marsh says a solid eight votes would give the Members on many occasions the power of determining the policy of the Council. Now Members are usually men in general practice with very limited spare time and very uncertain as to its disposal, whereas those Fellows who obtain election upon the Council are consultants with definite hours at their rooms and able to arrange their hospital work and other outdoor work by appointment not to interfere with the meetings of the Council. If under such conditions the Members attended better and determined the policy of the Council it would be the result of negligence on the part of the Fellows. There need be no fear that the coöperation of Members would impair the position of the Council in its functions as to promoting the art and science of surgery. Until the question of Members being admitted to the Council is decided in their favour the experiment of having a proportion of the Council necessarily men in general practice would be a decided advantage.

I am, Sir, yours faithfully,

A. PHILLIPS HILLS, M.R.C.S. Eng.

London, S.W., Nov. 7th, 1908.

THE PARATHYROID GLANDS.

To the Editor of THE LANCET.

SIR,—In the debate on Captain R. McCarrison's paper on Endemic Cretinism objection was taken to the view that the parathyroid glands have a function distinct from that of the thyroid proper.[1] There is, however, apart from experiments on the lower animals, a certain amount of purely clinical evidence for this view. Thus Maresch, in a necropsy on a girl, aged 11 years, the subject of sporadic cretinism, describes an absence of the thyroid proper with persistence of the parathyroids.[2] Peucker found the same condition in a post-mortem examination on a little girl, aged two and a half years, also a sporadic cretin.[3] Similarly, MacCallum records a case of a myxœdematous idiot, a girl, aged 13 years, in whom he found post mortem absence of thyroid proper with persistence of parathyroids.[4] On the other hand, Erdheim reports two cases of infantile tetany with hæmorrhage into parathyroid.[5] Also Yanase found in no less than 33 cases (or 37 per cent.) of "a tetanoid condition," as shown by galvanic reactions, evidence post mortem of parathyroid hæmorrhage.[6] Sir William Stokes of Dublin excised from a girl, aged 18 years, one lobe of a goitrous thyroid; no ill-effects ensued. Three and a half months later he removed the remaining lobe; this was followed by convulsive seizures, puffiness of the face, hands, and feet, slowness of speech, and mental torpidity, and in only 21 days by death.[7] It is difficult, in face of the cases of congenital absence of the thyroid living for years, to attribute the early death in this case solely to removal of thyroid tissue proper.

I am, Sir, yours faithfully,

Nov. 7th, 1908. WALTER EDMUNDS

[1] THE LANCET, Oct. 31st, 1908, p. 1296.
[2] Zeitschrift für Heilkunde, vol. xix., 1898.
[3] Ibid., vol. xx., 1899.
[4] Johns Hopkins Hospital Bulletin, vol. xviii., 1907.
[5] Congress für Innere Medizin, vol. xxiii., 1906, p. 112.
[6] Brit. Med. Jour., Epitome, March 14th, 1908.
[7] Brit. Med. Jour., Oct. 29th, 1898.

THE CAUSE AND PREVENTION OF DENTAL CARIES.

To the Editor of THE LANCET.

SIR,—I may not be able to answer the numerous questions which Dr. O. Clayton Jones has put to me, at least to his satisfaction, but perhaps the following brief answers may possibly be of interest to him. Both parents of all the ten children have had dental caries more or less extensive, except *possibly* in two cases. I do not remember whether I asked or was told about these two or not. I did not see them. In two cases the elder children had carious teeth—i.e., before the parents recognised the necessity of arranging the diet in accordance with the physiological principles which I maintain are essential to the welfare of the teeth. The ages of the ten children referred to vary from five to eight years, or to be more strictly accurate, when their teeth were last examined the ages were as stated above. I cannot say at present at what age they were all weaned but inasmuch as the majority were bottle-fed they must have been weaned at an early age. With regard to dental treatment; they, of course, had no dental treatment in the ordinary sense of the word. One never had his teeth brushed except after dining with friends. Another, the daughter of another dentist, had her teeth brushed at first but this was given up as he came to the conclusion that it was not necessary. One child did brush his teeth or had them brushed for him. I am ignorant on this point with regard to the rest. I believe in all the cases the fruit which was most commonly indulged in was the apple. With regard to the supervision of the treatment, in the case of my own little boy, who is now almost eight years old, I may perhaps claim to have supervised the dietetic arrangements. (He, by the way, has a younger brother with perfect teeth, but he, not having reached the age of five, is not included in the ten.) In the other cases I only directed the treatment as I have indicated through the medium of my books and occasional conversations with one or other of the parents. In order to be as sure as possible I have always insisted on examining the children's teeth myself, except in three cases. I accepted the word of the parents in these cases, as two were dentists and one a medical man. With regard to the question, "May not hundreds of parents have tried and failed, only those successful reporting?" I can only say in reply that I believe if any cases had turned out failures I should have been the first to have been acquainted with the fact. But I have not heard of any failures. I find I have omitted to answer whether sugar cane was given to chew. In one case at least it was, but surely this is a most unimportant detail. It was not my intention to dictate details. When such things as sugar cane are referred to in my books they are meant to illustrate principles or methods. I do not think I have even recommended sugar cane in my later communications. In conclusion, it will be seen that the children were not selected, except because the parents were intelligent enough to discard the ordinary irrational and dangerous system of dietetic error and to adopt the method

I suggested, which they appear to have seen held out "good evidence of its probable or at least possible success."

I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 7th, 1908. J. SIM WALLACE.

DIVISION OF THE AUDITORY NERVE FOR PAINFUL TINNITUS.

To the Editor of THE LANCET.

SIR,—In reference to the correspondence respecting division of the auditory nerve for painful tinnitus I should like to mention that on May 25th, 1905, I divided the right auditory nerve of a male patient, aged 32 years, who for over two years had suffered from very severe tinnitus and vertigo which had prevented his following his usual occupation. From Jan. 28th, 1904, to May, 1905, he had been an outpatient at the hospital and despite many different methods of local treatment obtained practically no relief. Operation was accordingly suggested and agreed to. The internal auditory meatus was approached through a large osteoplastic flap in the temporal region, the tempero-sphenoidal lobe being gradually displaced and the nerve ultimately reached by working from above along the posterior surface of the pars petrosa. The operation, on account of the great difficulty experienced in displacing both cerebrum and cerebellum, proved so difficult and tedious (occupying two and a half hours) as to make it evident that some other route should in future be selected. The patient suffered very severely from shock for four days, but ultimately recovered and left the hospital in good health and able to resume work.

Upon July 31st, 1906, I again divided the right auditory nerve in a female patient, aged 46 years, who suffered severely from tinnitus and had twice threatened to take her life. This time the nerve was approached through a large opening in the masto-occipital bone, the cerebellum being slowly displaced by a flat-shaped spatula. The operation was completed in one stage. Unfortunately, whether from loss of cerebro-spinal fluid (the loss was enormous) or from shock, the patient never rallied and died three days afterwards. The displacement of the cerebellum I found a very real and practical difficulty. At both operations I had the able and willing assistance of Mr. H. Lund and Mr. D. Lindley Sewell. I am, Sir, yours faithfully,

Manchester, Nov. 4th, 1908. WILLIAM MILLIGAN.

To the Editor of THE LANCET.

SIR,—I am greatly interested in the letters which appeared in THE LANCET of Oct. 31st, p. 1326, relating to division of the auditory nerve in cases of severe tinnitus. With Mr. M. Yearsley, however, I should like to know why Mr. C. A. Ballance did not "open and destroy the cochlea in preference to submitting the patient to the more serious cranial operation"? Mr. Richard Lake first destroyed the cochlea in a similar case some four years ago and published the very satisfactory results shortly afterwards. "Depuis elle a été pratiquée avec succés par un de ses collègues le Dr. A. Logan Murison," as Mr. Lake (whom I followed some two years ago) observes in an article in *Revue Hebdomadaire de Laryngologie, d'Otologie, et de Rhinologie.*

I am, Sir, yours faithfully,

Welbeck-street, W., Nov. 4th, 1908. A. LOGAN MURISON.

DIRECT EXAMINATION OF THE LARYNX, TRACHEA, AND ŒSOPHAGUS BY BRÜNING'S INSTRUMENT.

To the Editor of THE LANCET.

SIR,—May I correct a mistake which appeared in this article in your last issue? In the description of the radiogram, p. 1362, the double outline of the pin is caused by cardiac and not by respiratory movements as stated therein.

I am, Sir, yours faithfully,

Nov. 9th, 1908. HERBERT TILLEY.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS AT WASHINGTON.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

SUCCESS OF THE CONGRESS AND GREAT CONSIDERATION SHOWN TO THE FOREIGN DELEGATES.—TRANSLATIONS.—THE QUESTION OF THE VOTES AND RESOLUTIONS.—THE DARK SIDE OF THE CONGRESS.—CROWDED SECTIONS AND THE ATTEMPT TO ANNUL THEIR WORK.

New York, Oct. 9th.

ON all sides we hear loud congratulations of the work of the Congress and all Americans in asking for an opinion upon its work do so in a manner that admits of no doubt as to the answer they expect. Certainly it has been a wonderful manifestation. Nothing but praise can be uttered when the whole-hearted enthusiasm of the crowd of members and also of the general public is considered. This has been a great uprising of public opinion, led by the medical profession, but eagerly followed by thousands who, though not technicians in any way, are eager to learn how best they can help to fight the great white scourge. Last night I was assured the Congress had enrolled more than 6000 members. The press throughout the country is talking about tuberculosis, so that good educational work is being done. As for the delegates from abroad, they can but gratefully acknowledge that every effort was made to welcome them, to fête them, to honour them; and, what is more rare and more difficult, to give them every opportunity of speaking. Writing before the Congress had met, I pointed out what were the shortcomings of such gatherings. On that occasion I indicated the great danger that arose from the inevitable excess of local members as compared to the number of members able to come from foreign countries. This seemed to me all the more necessary as Washington is so far away from Europe that the foreign contingent was likely to be exceptionally small. There was a risk that, what with the difference of languages and the overwhelming number of English-speaking delegates, the representatives of other countries would hardly be heard. To-day, however, I am glad to state that the American organisers and the chairmen of the various meetings did their work well and with the spirit of true hospitality. The foreign delegates were not only able to obtain a full hearing but some official translators were appointed and speeches were translated into English and German. In this latter respect the Third International Congress on Tuberculosis has been an improvement on the preceding Congress and on many other international scientific congresses.

On the other hand, and as far as the resolutions are concerned, the present Congress has taken a step backwards. I know that the whole question of resolutions is open to much criticism and I have on more than one occasion expressed some scepticism as to the value of the vote given by the plenary sitting when at the close of the Congress the resolutions adopted in the sections are confirmed by the entire Congress. Often such votes are given out of politeness rather than from conviction. In any case he must be a bold man to rise before the whole Congress and challenge the decision of a section, this, too, when the end of the Congress is close at hand and most persons are anxious to get away. But if it is thus possible to criticise and to belittle the value of the votes given by the entire Congress at the final meeting such arguments cannot in any way apply to the resolutions adopted in the sections. Here, that is in the sections, there is full opportunity for discussion and for the moving of amendments. The votes of sections are of real value, have frequently helped in the framing of laws, and serve as guides to the legislators of many countries. It is, therefore, most important that they should be read out before the entire Congress, that all present should know what the sections have done, and that this should be repeated by the newspapers. Otherwise the work of the sections would remain buried so far as the general public is concerned. The value of the vote given by the entire Congress endorsing the resolutions carried in the sections may be challenged; the value of making the work of the sections known cannot be disputed. Now, at Washington, these resolutions were not read out at the final sitting and, of course, no vote was taken on them.

There are, then, two blots on the Washington Congress. The first I have already explained in my last letter. It related to the unwilling attitude of the authorities, or at least the representatives of the authorities; they refused to grant the requests made to them by the American medical men who were striving to organise the Congress and hoped, among other things, to obtain permission to hold the meetings in the Capitol. The second is connected with this question of the resolutions. It appears that on the last day but one, the Friday, a self-appointed committee sat where besides Professor Koch hardly any foreign delegate was present. Though these persons could not possibly have had any authority to interfere with the well-established course followed at international congresses they took upon themselves to decide that no resolutions whatsoever should be presented to the Congress. The meeting for the closing of the Congress was to take place on the morrow, the Saturday, at 11 A.M., and as usual the International Committee was to meet an hour previously to put the resolutions from the sections in order for their presentation to the entire Congress. Unfortunately, the Americans, who had been generally very punctual, came late to the meeting. Then, to the intense surprise of the majority present, it was announced that it had been decided not to read out any of the resolutions. Fortunately, the foreign delegates are not accustomed to such closures. Professor Landouzy, Dean of the Paris Faculty of Medicine, sprang to his feet and loudly expressed his astonishment that in so-called free America no respect was shown for the work and the votes of such an imposing Congress. He inquired whether he was expected to go back to Europe empty-handed, with nothing whatsoever to show as the result of a week's work and discussions. Never, in the most despotic countries of Europe, Professor Landouzy insisted, would anyone have dared to trifle with the work of such learned specialists as those who had assembled at Washington. He finally defied the Americans present to produce any sort of evidence to show that at any European congress such an autocratic interference with the principle of representation had been attempted. I do not guarantee that these were Professor Landouzy's words but such appeared to be the spirit and meaning of his most energetic, almost violent, protest. Professor Arloing and Professor Calmette were equally emphatic. Then the British, the Danish, some South Americans, and finally some of the Americans themselves joined in the protest. The position became threatening, the Congress might have broken up in confusion, therefore the promoters of this remarkable innovation gave up the attempt and withdrew their proposal. But so much time had been wasted that it was impossible to go through all the resolutions. The majority of the International Committee therefore decided to try to summarise some of the points in a general resolution. This was impossible, and the few somewhat anodyne resolutions that were read out at the end of the Congress in no wise represented what the Congress had done.

Needless to say this grave incident has led to much conversation and gossip. Professor Arloing is determined to speak publicly and strongly when he reaches his home at Lyons. Several members present at this memorable international committee meeting have appealed to me to give full publicity to the *attentat* against free discussion, as the occurrence has more than once been described. Of course, if a murder is committed, the first question asked is whether anyone is interested in the death of the victim. Now it is quite clear that the medical profession in America is not interested in this wholesale massacre of all the Washington resolutions. It is known that in Germany there are strong politico-agrarian interests involved in the question of bovine tuberculosis and doubtless there may be some Germans who would not be sorry to minimise the work of the Congress. However this may be they were signally unsuccessful if such an attempt was really made. On that question the Congress did make an emphatic pronouncement. It is on the question of housing that the Congress has gone back and has failed to produce emphatic pronouncements such as were made at Paris three years ago. The speculators in building lands and the individuals who grow rich on the rents gathered from unhealthy dwellings would have felt their position menaced if this great congress had repeated the Paris resolutions. Nor would they have been pleased by the resolutions carried unanimously in the fifth section at Washington, when members of the Commission of Inquiry on the Housing at New York were present. One of the resolutions which hit the sky-scrapers was worded as follows:—

Be it resolved that the International Congress on Tuberculosis in Washington recommends that the height of buildings and the proportion of the site that may be covered be restricted in all sections of cities not yet built upon, the regulations varying according to the distance from the centre of the city and local conditions.

There was also another resolution in the fifth section to the effect that the authority and the householders should combine to establish a sort of sanitation fund and that "in case of insanitary conditions the authority may sue the culprit, whether it be the occupier or the owner." It should also be observed that in some of the discussions in the fifth section Americans brought forward American resolutions. These, however, were withdrawn as the purport of the Congress was not to give a pronouncement on American affairs and the section rightly decided to vote only on matters that were of international interest. It is very unfortunate that the work thus done in the sections should be buried in the reports of those sections. Never at any international congress have I seen the sectional meetings so well attended. Section V. was especially crowded, often it was impossible to get a seat, and there were always several hundred persons present. In regard to attendance and ardour in following the discussions the Washington Congress has certainly greatly distinguished itself and that renders the attempt to smother up the results of all this work the more unwarrantable. The medical profession in America has not hesitated before now to attack the most powerful financial interests in the public cause, and it must be taken for granted that the suppression of the resolutions was merely a grave blunder.

WORK OF THE SECTIONS.

WEDNESDAY, SEPT. 30TH.

On Wednesday evening, Section I. was joined by Section VII. in order to discuss the relations of bovine and human tuberculosis and to see whether an understanding could not be reached as to the transmissibility of the bovine type to human beings. The presence of Professor Koch stimulated popular interest in the meeting, while the practical importance of the issue caused the discussion to be followed by many publicists; for much pending legislation may be influenced by its results. As much remained to be said when the adjournment was taken a special continuance of the session was arranged for Friday morning.[1] It was, however, held in private, in order to prevent journalists from obtaining information which might be used for an object other than scientific. Admission was by card only and your correspondent had the good fortune to be present. The proceedings will be published in full in about three months as soon as each speaker can revise the report of his remarks as taken by the official stenographer. As a result of the meeting it appears that Professor Koch stands nearly alone in the belief he enunciated in 1901 at the London Congress that bovine tuberculosis is of comparatively little importance to human beings.

Professor ROBERT KOCH read the following paper on

The Relations of Human and Bovine Tuberculosis.

He said: The question whether or not human and bovine tuberculosis are identical is indeed of high theoretical interest. But the practical importance of the question which concerns the prevention of tuberculosis is of far greater importance. For this reason I will confine myself solely to a consideration of the practical side of the subject. To Theobald Smith of Harvard belongs the credit to have been the first to call attention to certain differences between the tubercle bacilli found in man and in cattle. It was his work which induced me to take up this same study. In coöperation with Schütz I have undertaken a series of experiments for which we selected cattle, these animals being specially suited for such work. The results of these experiments have led me to conclusions which I have first communicated to the British Congress on Tuberculosis in 1901. They are in substance as

[1] It will be seen that our local correspondent, who was present at the private or semi-private meeting, does not take so serious a view of the policy pursued as has been taken by our Special Sanitary Commissioner, who, however, may be taken to voice the opinion of the foreign delegates generally. It will be noticed that both of our contributors allude to the fact that political reasons were at the bottom of the departure from accepted custom.

follows: 1. The bacilli of bovine tuberculosis are different from those of human tuberculosis. 2. Human beings may be infected by bovine tubercle bacilli, but serious disease from this cause occurs very rarely. 3. Preventive measures against tuberculosis should therefore be directed primarily against the propagation of human tubercle bacilli. I did not expect that my personal views on the relation of human and bovine tuberculosis would be accepted as final, but I have asked that the experiments of Schütz and myself be repeated. This has been done since by a host of investigators. Many sources of error must be considered in research on tuberculosis, and only work in which these errors have been definitely excluded can be accepted as conclusive. My personal estimate of the value of the work of other authors depends on how far these errors have been eliminated. For this reason I will now summarise briefly the requisites for conclusive work on the differentiation between human and bovine tuberculosis. The animals used for experimentation must be entirely free from spontaneous tuberculosis. Since the earliest stages of tuberculous infection cannot be recognised with certainty, the source of error arising therefrom is only to be overcome by experimenting on long series of animals. This is especially true of investigations on cattle, as in them tuberculin proves the presence of tuberculosis not immediately after infection but only after the lapse of a certain time. Experiments conducted on too small a number of animals carry no weight whatever. Single exceptions in extensive series of experiments depend as a rule on experimental error. They should be valued accordingly or the whole series repeated. During the entire period of investigation the animals—that is, cattle, rabbits, and guinea-pigs—must be protected rigidly against tuberculous infection. This applies especially to bovine tuberculosis as the animals are particularly susceptible to this form of the disease and every experimental error vitiates the results in favour of bovine tuberculosis. Special care must be observed in the separation of animals which have been inoculated with bovine tuberculosis obtained from men under the belief that one is dealing with the human form of the disease. Such animals must never be allowed to come in contact with those inoculated with true human tuberculosis. Inoculation of animals should be made subcutaneously with weighed quantities of a *culture* of the tubercle bacillus. Experience has shown that the best results for infection are obtained with doses of 10 milligrammes. Tissue substance must not be used directly, as it contains the tubercle bacilli in irregular distribution. The results obtained thereby are consequently not comparable. It is not practicable to use the tubercle bacilli in too large doses or to make intravenous or intra-abdominal injections, as by such applications non-virulent or even dead tubercle bacilli may produce lesions resembling tuberculosis and thus simulate positive results. In the preparation of the cultures it is necessary that even while obtaining the crude material all precautions must be followed which serve to prevent a contaminating infection either during the inoculation or in the making of the cultures. If it is impossible to make the culture of the bacilli immediately from tuberculous organs—and this is usually the case—the material must first be inoculated into guinea-pigs. This is permissible since it has been proved that a single passage through the body of the guinea-pig does not markedly alter the characteristics of the tubercle bacillus. For infection experiments the culture obtained from the organs of the inoculated guinea-pigs must not be too old and should be used, if possible, in the first or second generation. For standardisation of virulence rabbits may be used, as a rule, in place of cattle. In all doubtful cases, however, the test must be made on a corresponding number of cattle. In determination of the virulence of the culture of tubercle bacilli it is imperative to distinguish between progressive and regressive processes. For this reason experiments must be continued over a long enough time to enable one to make the differentiation with reasonable certainty. If the animals are killed too early it is usually impossible to make certain whether the tuberculous processes found are of a progressive nature or not. It is well to appreciate that mixed infection by human and bovine tuberculosis may occur. In such cases if proper precaution is not taken in animal experiments bovine tuberculosis will always gain supremacy and lead to error. With regard to experiments in feeding with phthisical sputum, the following points must be observed. If under all conditions the so-called sputum contained only tubercle bacilli of the patient in question, the conduct of these experiments would be relatively simple. But everyone who has examined sputum under the microscope knows that it is mixed nearly always with particles of food. These, of course, may contain milk and butter which themselves may harbour tubercle bacilli derived from cattle. I consider the experimental error caused thereby of such significance that only those experiments on the occurrence of the bacillus of bovine tuberculosis in sputum can be regarded as conclusive from which this error has been absolutely excluded. In order not to be misunderstood on this point which is to me of paramount importance, may I be allowed to give the following illustration. The British Commission, which is engaged in the investigation of the relation between human and bovine tuberculosis, has conducted experiments on the feeding of phthisical sputum to cattle. Three calves were fed over a period of 120 days, during which time each received a total of 30 litres of sputum. A fourth calf received 21 litres in 91 days. After slaughter there were found in these animals isolated calcified nodules but no traces of the progressive lesions so characteristic of bovine tuberculosis. On the other hand, a cow was fed with sputum for 209 days. When the animal was killed at the end of this time a progressive tuberculous process was found in the mesenteric and portal glands. Here there appeared to be a positive result of the feeding experiment. However, in simultaneous experiments, in one of which a cow was fed with the same sputum for 300 days and in the other two pigs, negative results were obtained. Adding to these the four negative experiments on calves and considering other similar experiments previously performed—for example, those by myself and by Moeller in Belzig—I cannot but believe that the above result is merely an exceptional case in a large series. The British Commission counts this among its positive results. In my own opinion this is not justified. It seems to me highly probable that in this case an experimental error has slipped in and that the cow was infected by tubercle bacilli contained in milk or butter which had been mixed accidentally with the sputum. If such feeding experiments are to be conclusive it is absolutely essential that sputum collected from various patients must not be used as has been done probably in all former experiments. The sputum of only one definite consumptive should be fed to one definite animal. Obviously care should be taken that the patient in question receives during the experiment neither milk nor butter. Furthermore, in order to exclude all error and to prove that one is dealing with the continuous production of tubercle bacilli by the patient and not with an accidental contamination of his sputum, the experiment must be so arranged that it can be repeated from time to time with the sputum of the same patient. The experiments carried on at the Kaiserliches Gesundheitsamt in Berlin are the only ones which fulfil in every way the foregoing experimental requirements. Those of the British Commission fail in several respects, and all other work which has come to my notice answers these requirements so poorly that I can grant them no weight, at least as regards the occurrence of bovine tuberculosis in man. Many of my opponents have made strenuous efforts to prove that the tubercle bacilli in men and those in cattle cannot be of different species, and they imagine that they can thus refute my contentions. This, however, is a perfectly useless endeavour; I have never held that we are dealing with two distinct species but have only stated that they differ from each other in certain characteristics—characteristics which are of the greatest importance in combating tuberculosis. Whether these differences justify us in speaking of special varieties or even species is, from my point of view, quite irrelevant. I am concerned, as I have previously stated, only with the practical significance of the differences between human and bovine tuberculosis. A very convenient expedient in this dilemma has been suggested by Kossel. He does not use the terms "species" or "variety" but speaks of different "types." As this appears quite harmless I shall adopt it myself and use the terms "human type" and "bovine type." Others of my opponents have attempted to refute me by showing that the bacillus of the human type may be transformed into the tubercle bacillus of the bovine type and *vice versâ* by passages

through animals or by cultivation under artificial conditions. In this connexion I can merely repeat that I am interested only in the practical significance of the difference between the two types of tubercle bacilli. For our purposes—that is, for combating tuberculosis—it is absolutely without significance what changes tubercle bacilli will undergo after being passed through a series of animals or during cultivation under some artificial conditions. Those men who consume milk and butter do not hold back and make cultural or animal experiments; they eat them in the fresh, unchanged condition. In my opinion, therefore, we are concerned here with the properties of the fresh and unchanged tubercle bacillus only. I do not deny that cultural transformations may be made with these as well as with other bacteria, but this is a question of purely theoretical value. I shall therefore lay it aside. We may now take up the results of recent investigations. I believe that what has come to my knowledge so far may be summarised briefly as follows: 1. All competent investigators agree that the tubercle bacilli of human origin differ from the tubercle bacilli of cattle and that consequently we must differentiate between a typus humanus and a typus bovinus. The British Commission also admits the existence of these differences, but as some of its cultures showed definite changes in their characteristics after passage through animals and various cultivations they have differentiated a third group which they call "unstable." As I have repeatedly emphasised, it is not of the slightest importance to us whether after animal inoculation or breeding experiments the tubercle bacillus is stable or unstable. What concerns us is behaviour in the fresh condition. I am, therefore, unable to accept this third group of the British Commission, and I am satisfied with its admission that the fresh tubercle bacilli of the human type differ distinctly from those of the bovine type. 2. The tubercle bacilli of the human type are characterised by the fact that they grow rapidly and abundantly in a thick layer on a glycerine serum. They are virulent to guinea-pigs, slightly virulent to rabbits, and almost non-virulent to cattle. 3. The tubercle bacilli of the bovine type grow very slowly and in a thin layer on glycerine serum; they are of equally high virulence to guinea-pigs, rabbits, and cattle. 4. To my knowledge the bacilli of the human type have never been demonstrated in cattle. 5. The bacilli of the bovine type, on the other hand, can occur in man. They have been found in the cervical lymph glands and at the intestinal tract. With few exceptions, however, these bacilli are but slightly virulent for man and remain localised. The few known cases in which the bovine tuberculosis is said to have produced a general and fatally progressive tuberculosis in man appear to me not to be above suspicion. 6. In closing I have still one point to discuss which seems to me of high importance. Of all human beings who succumb to tuberculosis eleven-twelfths die from consumption or pulmonary tuberculosis and only one-twelfth from other forms of the disease. One would have expected, therefore, that those investigators who are interested in establishing the relations between human and bovine tuberculosis would have searched for bacilli of the bovine type preferably in cases of pulmonary tuberculosis. This, however, has not been the case. Evidently animated by the desire to bring together as many cases as possible of bovine tuberculosis in man they have investigated particularly cases of gland and intestinal tuberculosis and have neglected the much more important pulmonary tuberculosis. In spite of the bias under which the researches hitherto have suffered, there yet remains at our disposal a sufficient number of investigations of pulmonary tuberculosis to warrant a provisional expression of opinion. Up to date in no case of pulmonary tuberculosis has the tubercle bacillus of the bovine type been definitely demonstrated. If on further investigation it should be established that pulmonary tuberculosis is produced by the tubercle bacillus of the human type exclusively, then the question will be decided in favour of the view which I have upheld and we must direct our regulations for combating tuberculosis by all means primarily against the tubercle bacilli of the human type.

Professor Koch concluded his eagerly expected address by stating that on account of the great importance of the question he intends to undertake as soon as feasible experiments along this line on a broad scale, at the same time begging other workers to join with him. But he laid stress on the fact that the conditions laid down by him for the carrying out of the investigations must be followed.

Dr. THEOBALD SMITH was the first to rise after the excitement caused by Professor Koch's remarkable words had somewhat subsided. He agreed with Professor Koch that metamorphosis of bovine into human types did not occur under ordinary conditions; but Professor ARLOING (Lyons) strongly contested this view, and Dr. RAVENEL, too, believed that even in cattle the bacilli in the lung when examined *in situ* resembled the human rather than the bovine type, and that they are coughed up and distributed. He emphasised the experiments which proved that organisms could pass through the intestinal walls without traces, traverse the thoracic duct, and be found in the lungs within four hours. He did not believe the proportion of bovine cases at all insignificant.

Professor G. SIMS WOODHEAD (Cambridge) claimed that in no sense could the members of the British Royal Commission be spoken of as Professor Koch's opponents. He believed that they were all working to one end and he believed that that was the elucidation of a problem which Professor Koch had placed before them and which he was satisfied they were all of them anxious to solve. Speaking personally, and he believed he might speak for his colleagues—though he should commit them on no other points—he had the greatest admiration for the work that Professor Koch had done; indeed, he believed that no man in the world, other than Professor Koch, could have enticed them to take up this question. He should like to say that as regards the conditions laid down by Professor Koch, he thought unnecessarily at that stage, the British Royal Commission had exercised the greatest care to meet them. Their Government had been induced to spend a very large sum and through the generosity of Lord Blythe they had been able to secure farms at considerable distance from each other which could be completely isolated, and a central laboratory, between the two, to which material to be worked out could be brought, thus doing away with any necessity for any direct communication between the farms. As to animals, they were fortunate in having an island (Jersey) in which tuberculosis had not yet broken out among the cattle, and they had thus been able to obtain a very large supply of healthy bovines on which to carry out their extensive series of experiments. As regards contamination they had obtained the services of assistants in whom they had every confidence and the results they had obtained had been set forth in their reports and in the greatest detail, so that those who questioned their opinions might see the data on which they were founded, and he asked those who read their reports to go to these appendices for the details of any case in which they thought there might be any doubt; they might then form their own opinions. He had already stated that they had spent much money and had great facilities offered to them in carrying on their work, and he asked them to accept this as evidence that they, at any rate, looked upon this question as an intensely practical one, one that had been set before them by the greatest authority of our time, and they felt that no stone should be left unturned to test the accuracy of statements, with which they could not agree, from the evidence they had at their disposal. Professor Koch had taken a single instance and had criticised their findings. They had taken the utmost care to eliminate the possible dangers that Professor Koch had warned them of. Allowing for a moment that there were flaws in the experiment that Professor Koch criticised, one of the earliest that they conducted, he would draw attention to those other cases bearing on the same point in which he believed they would find no loophole for criticism. It could not be a question of merely academic interest, when some 30 per cent. of the cases reported by the two commissions, English and German, were of alimentary origin, for, as calculated by Dr. Cobbett, this meant that about 7 per cent. of the cases of tuberculosis with which they had to deal probably resulted from infection of bovine origin, and 7 per cent. of the cases, allowing a little latitude on either side, could not be looked upon as a negligible quantity. Professor Koch had stated that the alimentary cases were selected but he should like to point out that they were selected for a short time after they commenced their experiments, for the reason that Professor Koch had stated that he had been unable to find any large proportion of cases in Germany. He might say, however,

that after selecting cases for a certain period they found it unnecessary to continue so doing, as they obtained quite a sufficiently large number without making any special selection. In regard to the question of modification of tubercle bacilli he was not in position to say more than had appeared in the reports of their Commission, but he should like to point out that they had a warning illustration in what was, and even is, taught as to the infectivity of tuberculosis, even after the discovery of the tubercle bacillus. The interval at which the disease manifested itself was so great after the infection occurred that many people could not bring themselves to believe that cause and effect were in any way associated. This slow growth of the tubercle bacillus had interfered with acceptance of the "infection" view and it was only when brilliant and patient men like Professor Koch took up the question that this point was settled. Even to-day there were many who did not believe in the infectivity of tuberculosis because of this long period of incubation. Should they not expect to find similar difficulties in tracing the modification either in morphological characters or in virulence of the tubercle bacilli? He believed that the same conditions which regulated the modification of the more rapidly growing bacilli would probably hold good in the more slowly growing tubercle bacillus. It would, of course, take a much longer period for these modifications to come into effect, and it might be that there were conditions in nature which they had not yet been able to copy but which in time might be at their disposal. He thought, however, they had sufficient evidence before them to warrant them in hoping for success even in this direction. Of one thing he was convinced, that in this matter until a clear negative was proven those who took the risk of saying that there was no danger to the community either directly or through an increase of tuberculosis among cattle were incurring a very grave responsibility indeed, and he was so satisfied with the evidence that had already been obtained, not only in England and Germany, but in France, Denmark, and elsewhere, that he should not be willing to countenance the relaxation of a single regulation for the control of bovine tubercle. Indeed, he would go further and say that in the interests of hygiene additional and more stringent regulations ought undoubtedly to be applied.

Professor ARLOING then presented the result of his experiments showing a wide range of virulence in bacilli of distinct human type, and argued from this that mere virulence was no criterion. Nor were there produced in the host essential morphological differences; the lesions were alike in the beginning, while later either bacillus might equally produce atypical tubercles. Moreover, the cultural characters insisted upon by Theobald Smith were quite temporary in each bacillus according to its age and environment. Thus, even the most experienced bacteriologists cannot affirm with certainty that a culture presented to them was either bovine or human. He opposed the contention that man was less receptive to bovine organisms by citing a case by Gaultrier in which a nephritic patient sent to a farm on a milk diet contracted glandular tuberculosis of the neck from the contaminated milk, the farmer dying later from pulmonary tuberculosis. (This case is inconclusive, for the milk may have been contaminated by human tuberculosis during its handling by the farmer.) As to the question of intestinal infection, Professor Arloing contended that it was less rare than supposed, and in any case need not show a local reaction, as he himself had proved. He believed it to be impossible to estimate the proportion of human cases; for the proposed tests required experimental confirmation while the inoculation test of Koch was by no means invariable.

Dr. FIBIGER and Dr. YENSEN (Copenhagen) agreed as the result of cross-inoculations between men and cattle that the metamorphosis of the two types of infection was possible.

Dr. DINWIDDY (Arkansas) used material from human tuberculous glands of the neck, also from one case of arthritis of the knee, and from one genito-urinary case, and injected it intraperitoneally in cattle. He found it no more virulent than pulmonary sputum and therefore concluded that the theory that scrofulous glands and surgical tuberculosis are derived from the bovine type is without support.

Dr. DUVAL (Montreal) studied cultures from four gland cases entirely similar clinically, as each died in a few weeks after onset from miliary tuberculosis. One of these organisms proved to be bovine, one human, and two indeterminate, thus showing the inconclusive nature of clinical evidence.

Dr. DAVOLOS and Dr. CARTAGLA (Havana) pointed out the infrequency of tuberculous cattle in Cuba and their failure to find in human beings bacilli of the bovine type.

Dr. DAWSON (Delaware) maintained that statistics gave an exaggerated idea of the extent of tuberculosis in cattle in the United States; for as a rule it was only suspected herds which were tested. He, too, reiterated that there were numerous cases where infection from cattle was to be presumed.

Dr. NATHAN RAW (Liverpool) drew attention to the probable immunity of man against the bovine type on account of his having fed for centuries on dairy products. He believed in the dualism of tuberculosis, and that typus humanus produced pulmonary tuberculosis, ulceration of the intestines and tuberculous laryngitis, while typus bovinus caused glandular infection, peritonitis, miliary and meningeal tuberculosis, and the joint and skin infections. He believed that immunity might be artificially increased by employing bovine tuberculin against human infections and *vice versâ*. He also alluded to the aerial convection of infection.

(To be continued.)

BELFAST HEALTH COMMISSION.

(FROM A CORRESPONDENT.)

ON May 1st the joint public health, works, improvement, and market committees of the Belfast corporation were appointed to consider and to report upon the findings and recommendations of the Health Commission, and this joint body has now, after between five and six months, made its report which led to an animated and protracted discussion at the city council on Oct. 22nd. An amendment moved by a member of the citizens' health committee in a very able speech was rejected by 14 votes to 6, and ultimately the report of the joint committee was adopted.

The joint committee in recording a history of what led to the Commission quotes an extract from a Belfast paper of Oct. 17th, 1906, giving an account of a deputation which waited on the previous day upon Mr. Bryce, the then Chief Secretary in Dublin Castle, with reference to the health of Belfast, and asking for a Viceregal Commission, but it omits altogether any reference to the public discussion in the Belfast papers during 1906 as to the health of the city. It mentions nothing about the action of the Ulster Medical Society which sent a deputation on June 1st, 1906, to the city council to emphasise certain resolutions passed unanimously on May 17th, 1906, urging that the person to be appointed as medical officer of health should be a man of practical training and experience in public health, that he should be the head of his department, and that he should be properly recompensed. No notice is taken of the great public meeting of citizens held in the Ulster Hall, Belfast, on Sept. 27th, 1906, expressing dissatisfaction with the state of public health in Belfast, protesting against the small salary (£600) fixed by the corporation for the new medical officer of health, and appointing a deputation to wait on the corporation on Oct. 1st, 1906, when, failing a postponement and final satisfactory settlement regarding the appointment of medical officer of health, the organisers of this meeting were authorised to act with the citizens' health committee to take such steps as might be necessary to apply for a Royal Commission of inquiry into all matters pertaining to the public health of the city of Belfast. This deputation went to the corporation and put the facts before it, but no attention at all was paid to its suggestions, and here is what the Belfast Health Commission reports on the matter. "In view of the many complaints which for several years had arisen in connexion with the work of the public health department, it was of primary importance that a man of wide experience in public health administration in other places should have been appointed and that a salary should have been offered which would have attracted highly qualified and experienced candidates. This view was very strongly urged upon the corporation by the Local Government Board but was not adopted. We consider that a grave mistake was made by the corporation in not accepting this advice. This office, for a city like Belfast, is always of great importance

and was specially so in the circumstances of the moment; and it must be remembered that the issues at stake concerned the health of a large industrial town eighth in population of the United Kingdom. Unfortunately, in Belfast it has been customary to fill this position by electing a former member of the corporation thereto and it is obvious that when a comparatively low initial rate of salary is proposed, and it appears probable that local connexions will outweigh special qualifications for the discharge of the duties of the office, the choice of candidates is likely to be restricted." This deliverance of the members of the Belfast Health Commission more than justifies the action of those citizens who tried to keep the council right on matters of public health (regarding which the majority of them have little knowledge) and who were forced by the action of the city corporation to ask that a commission of inquiry should be appointed into matters of public health. Fault is found that the Commission was sprung upon the corporation and that the council had not time to prepare for it. Well, the Commission was asked for in Oct. 16th, 1906, and it did not begin its sittings until March 5th, 1907; surely a sufficient time for any efficient public health or other department to be prepared. The fact that there was an epidemic of cerebro-spinal meningitis is no excuse for not being ready. What sort of a public health department is it that is thrown into confusion by every epidemic of disease? Then objection is found that examination and cross-examination of witnesses by counsel were not allowed, but, as explained by the chairman on the opening day, the inquiry was being held for the purpose of ascertaining facts rather than to try issues between contending parties, and therefore the opinion of the Commissioners was against the admission of counsel; they agreed, however, to allow counsel to place the case of those for whom they appeared before them, but they decided wisely to allow the examination of witnesses to remain in their own hands. Nothing is said in this respect as to the fact that two of the ablest members of the Irish Bar were retained by the corporation to look after its interests; one after a time retired, but the senior remained through almost all the sittings, while the citizens' health committee, the medical men, and others giving evidence did so at their own expense. Now, if the public auditor allows the payment of counsel employed by the city council these very people who got up so carefully the evidence which they put forward at their own expense will actually have, as ratepayers, to contribute also to the payment of fees of opposing counsel, a truly Gilbertian situation!

In the report of the Belfast Health Commission reference is made to what is known as the famous "Harrison report," reprints of which the Citizens' Association furnished to the Commissioners. "The report," the Belfast Health Commission says, "described the grossly insanitary condition of many areas, the prevalence of ashpit privies, the practice of filling up vacant pieces of low-lying ground with the contents of ashpits, the existence of insanitary houses and of unpaved back passages, and the continued discharge of sewage into certain streams, such as the Blackstaff, Lagan, and Conswater rivers. It also described the public health administration as being feeble and insignificant, not only because the public health committee were indifferent to their responsibilities but also because they had not under their control a sufficient staff of efficient men under proper organisation and discipline. This report was presented to the Belfast corporation in October, 1906, by a committee of their own members which had been appointed in the preceding August to inquire into causes of the high death-rate of Belfast, and the unsatisfactory condition of its health generally. This report is of importance in relation to the present inquiry because it expressed the views of a committee of the corporation on their own administrative methods." Now, in reply to this very damning criticism it is said that this Harrison report was not adopted by the council, therefore it should not have been accepted by the Belfast Health Commission. This may be quite true in the same way that the Belfast city council would not adopt the report of the Belfast Health Commission or of any other report that reflected upon its administration, but the fact remains that this Harrison report "expressed the views of a committee of the corporation on their own administration," and had the suggestions in that report been adopted, probably there would have been no need for a Belfast Health Commission.

The deputation that waited on the Chief Secretary asking for a health inquiry laid before him statistics which in its opinion demonstrated that the death-rate of Belfast, when compared with the majority of the larger cities of the kingdom, was excessive and that the excess was caused largely by diseases of the classes which, in the present state of sanitary science, are known to be preventable, and these statistics were based, so far as Ireland was concerned, upon the official governmental figures of Sir Robert Matheson, the Irish Registrar-General. The Belfast Health Commission found "that the death-rate from all causes in Belfast is, and has been for several years, about the same as that of Manchester, rather lower than that of Dublin or Liverpool, but not so low as that of other large cities of the United Kingdom. Although the death-rate of Belfast from all causes is by no means low, we think the allegation that it is or has been in recent years excessive cannot be maintained. On the other hand, mortality in Belfast from certain causes, notably from enteric fever and from phthisis, and to a less extent from diseases of the nervous system, has been excessive." In other words, in 1906 the death-rate of Belfast from all causes was about the same as Manchester, better than that of Liverpool and Dublin, but not so good as Glasgow, Edinburgh, Birmingham, Bristol, Sheffield, Cardiff, and Leeds, but this statement is not made on the assumption that in Belfast in 1906 the population was as the Irish Registrar-General estimated it as being 366,220, nor as the chairman of the Belfast public health committee did (388,159), but as about 380,000 according to the estimate of the Belfast Health Commissioners. The matter of the population of Belfast is of so much general importance that it demands careful consideration. The Irish Registrar-General estimated the population of Belfast in 1906 as 366,220, his calculation being framed as the result of consideration of the birth-rate, of the effects of emigration and immigration, and of any local facts of which he could obtain knowledge. In Great Britain the population of communities is estimated by assuming that the last intercensal ratio of increase or decrease has been maintained. On such a calculation the population of Belfast in 1906 would be, on the English method, 397,202. Now, everyone living in Belfast knows that the city of late has not increased at all (that is, since 1900) as it did before, indeed (as stated in the Health Commission's report) in 1906 the number of new buildings fell to 622, which is lower than that of any previous year since 1860. So no one would accept the English method as at all accurate in the case of Belfast. Again, the chairman of the Belfast public health committee submitted an estimate of his own in which the population of 1906 would be 388,159, an estimate based in the main on the number of occupied houses in the city, and the city surveyor arrived at a somewhat similar figure as the result of a special inquiry. In reference to these matters the Belfast Health Commissioners report: "In connexion with these estimates, both of which are largely based on the number of 'empty' houses in 1906 as compared with the number of houses returned as 'uninhabited' in the census of 1901, it has to be borne in mind that the terms 'empty houses' and 'uninhabited houses' are not synonymous, for the latter term includes business premises unoccupied at night, while the former does not. *If allowance could be made for this discrepancy it might well be that both these unofficial estimates would come to be nearly identical with the official estimate of the Registrar-General.*" (The italics are the writer's not the Commissioners'.) Faced with these diverging estimates the Belfast Health Commission adopted one of its own, and so it says that the probable population of Belfast in 1906 was not much more than 380,000.

The method adopted by the Commission for making its own estimate of the population of Belfast in 1906 is a very hypothetical and fallacious one. The birth-rate of the city is ascertained for the years 1891 (33·8) and 1901 (31·1), and the assumption is made that the birth-rate decreased uniformly during the decennial period and continued to do so afterwards, giving a hypothetical birth-rate of 29·85 per 1000 for the year 1906, and on this basis a population of 380,500 is arrived at. Now, in the first place, the birth-rate is just as difficult a matter to ascertain as the death-rate, and as subject to variation from causes which have little to do with the population (such as bad trade, &c.). In order to get at the birth-rate one must know the population.

In the second place, the number of births in Belfast for the year 1901 (the Census year) is less than the number for either the two preceding or the two succeeding years, which

means that it is quite impossible to accept the birth-rate of that year as one of the two factors from which a series of diminishing birth-rates are to be derived. In fact, had the number of births for the year 1901 been up to the average, then this method would have shown a population for 1906 closely approximating to the Irish Registrar-General's figures and so again ratifying it. The Commission adopts this fallacious method, which shows the following figures as being the population of the city:—

Year.	Population.
1899	361,000
1900	357,000
1901	349,180
1902	360,000
1903	375,500

and accounts for the diminution between 1899 and 1901 by reason of persons going to the South African War. It is safe to say that far more persons have gone to Canada in recent years than those who went to South Africa during the war. On these grounds it seems impossible to accept the findings of the Commission as to the intercensal population of Belfast, and the figures of the authorised authority—the Irish Registrar-General—seem to be justified.

In comparing Belfast with English cities the Commission assumes that its population is 397,202 in 1906, although it is acknowledged on all hands that such an estimate is an over-statement of the real facts. The reason put forward is that the English Registrar-General adopts the method of geometrical progression in estimating the population of English cities, and consistency requires that a similar method must be applied to Belfast statistics before they are comparable. But this involves a serious fallacy. What we want to compare are facts, not the results of hypothesis, and it is obvious that if the method of the English Registrar-General when applied to most English cities gives facts, and when applied to Belfast does not give facts, the results are not comparable, although the method may have been consistent. This is exactly what has happened. For example, during the last intercensal period Liverpool increased 9 per cent. and Manchester 7 per cent., and it is not unreasonable to suppose that the rate of increase has been maintained. But Belfast increased 28 per cent. and it is admitted by everyone that this rate has not been maintained. It is therefore absurd to give Belfast a population of 397,202 in 1906, and the comparisons with English cities, given in the report, cannot be accepted as a correct statement of facts. All the methods for calculating the population of a community in an intercensal period are hypothetical, but one method should prevail in all parts of the United Kingdom. Those who put the figures before the Chief Secretary for Ireland based them on the accredited figures of the Irish Registrar-General, and nothing that has since occurred has upset their belief in the probable accuracy of his returns and of his methods of calculation so far as Belfast is concerned; certainty will only be reached in 1910 (when the census for that year is taken). But even supposing we accept the findings of the Commission (and this is the one single point in the whole report about which the public health authorities of Belfast can take any heart) as to the comparison of Belfast—a newly built, admirably situated city of modern growth—there is little ground for satisfaction that it has a death-rate about the same as that of Manchester and rather lower than that of Liverpool or Dublin, but not so low as that of the other large cities of the United Kingdom. That it should be less than Dublin affords little satisfaction, but is it really creditable that the great modern city of Belfast should be (excluding Dublin) bracketed as having the second highest general death-rate among the large cities of the United Kingdom? As to the second point laid before the Chief Secretary by those asking for an inquiry—i.e., that the excess of deaths in Belfast was caused largely by preventable diseases—the Belfast Health Commission reports that the mortality from certain diseases, notably from enteric fever and from phthisis, has been excessive; indeed, it adds, "The mean annual mortality from enteric fever has been so exceptional in Belfast for the last 25 years that it appears to have no parallel in any other city or large town in the United Kingdom."

In their reply to the Health Commission, which points out that "the cause of not one infant's death in the city is known to the Belfast corporation," the writers of the recent corporation report say, "The public health committee procures from the registrars of the city cemeteries notifications of all the interments of children under five years of age, and the lady officers of the department (there are only three lady health visitors in this department according to this report for a city of 366,220) visit the homes where the deaths occurred, ascertain the cause, and give advice where required as to future action." What would any public health department in an English or Scotch city think of such a method of finding out the causes of infantile mortality, a method vitiated by the fact that many interments take place outside Belfast in country graveyards, and that if the death of an infant is already registered a form is given by the medical registrar saying that the death of —— (name inserted) has been registered, but not mentioning the cause of death, which the parent hands to the registrar of any of the city cemeteries, when a grave is to be opened? The registrars may ask verbally the cause of death, but of what use is this in the case of often uneducated parents and with registrars who have not had a medical training? The proof of this is found in the annual report of the medical officer of health for 1907, where it is shown on table No. 6 that there were 1523 deaths under one year and 1094 deaths from one year and under five years, while Table No. 63 shows that of the deaths under one year those notified by the registrar of city cemeteries were 480 (that is, 480 out of a total of 1523), while Table 64 demonstrates that of those dying between one and five years there were notified by the registrar of city cemeteries 300 out of a total of 1094. Therefore, of the total deaths of children in Belfast under five years in 1907 there were only 780 notified by the registrar of cemeteries out of a total of 2617, that is not one-third.

As to phthisis, the committee of the corporation states again (as it has been doing in the public health department for a quarter of a century) that its prevalence in Belfast is due to: (*a*) the damp soil of Belfast; (*b*) occupation of females; (*c*) nature of the food; and (*d*) natural susceptibility of the Irish race to the disease, foregetting that any tyro in public health work knows that all these predisposing causes may exist in places where the death-rate has steadily fallen. To repeat constantly that the great prevalence of phthisis in Belfast is due to these causes is really only the parrot cry of those who either do not know or who have never grasped the fact that when Koch and others showed that phthisis was due to a specific bacillus and that it was both communicable and preventable, an entirely different sanitary problem was presented for consideration and that for its solution new methods must be adopted. Any recent diminution in the death-rate from consumption in Belfast is due largely to the education of the people by outside agencies and to the admirable methods adopted by the Belfast guardians who had the foresight, under enlightened medical advice based on Koch's discoveries, to isolate in 1899 the consumptive patients in separate wards and to erect four years ago their splendid sanatorium (with 265 beds) at Whiteabbey. In comparison to what the Belfast guardians have done the efforts of the public health department are liliputian (35 beds in the Forster Green Hospital ready on Oct. 1st of this year and a dispensary)—that is almost two years after the deputation asked for a commission.

(To be concluded.)

BRISTOL.

(FROM OUR OWN CORRESPONDENT.)

University College Union.

WITHIN the past twelve months 15 of the clubs and societies connected with the several faculties of University College, Bristol, have been amalgamated to form the "University College Union," which, it is hoped, will include in its membership everyone connected with the College, whether students or members of the teaching staff. A subscription of one guinea will carry membership of all the various athletic, social, and scientific organisations, and this small sum necessitates a large membership if the union is to be a success. It has already bought an athletic ground, 10 acres in extent, situated near a line of trams at Horfield, a northern suburb. This will cost £1300 or more; at present

there are about £950 in hand, £900 of which were raised by a very successful fête held at the Clifton Zoological Gardens in the summer.

The Bristol Medical Library.

At a general meeting of the Bristol Medico-Chirurgical Society held on Oct. 14th Mr. C. K. Rudge, the honorary librarian, gave a short account of recent changes in the character of the Medical Library. This is one of the largest libraries of its kind in the country, containing over 20,000 volumes and taking in over 200 periodicals. It is under the joint control of University College (in the building of which it is situated) and the Medico-Chirurgical Society. Both of these bodies have now agreed to the circulation of their books, with certain necessary reservations, among the subscribers to the library. Further, there is under consideration a scheme for establishing a "National Libraries Association," which would undertake the interchange of books and periodicals between various medical libraries. It is thought that if only two or three libraries join at first the scheme will still be worthy of trial.

Long Fox Lecture.

Mr. J. Herbert Parsons delivered the fourth annual Long Fox lecture on Nov. 5th before a large audience in the Medical Library of University College, Mr. F. Richardson Cross being in the chair. The subject, Metastatic Inflammations of the Eye, proved to be of general as well as special interest. Mr. Parsons dwelt on the tendency of the various infective agents which invade the eye by way of the blood-stream to select the uveal tract for attack and ascribed this to biochemical rather than to anatomical reasons. After a brief notice of pseudo-glioma retinæ and other possibly infective conditions Mr. Parsons concluded by stating his belief that "sympathetic" ophthalmitis is excited by blood-borne infection, and reminded his hearers that it was Mr. Augustin Prichard of Bristol who was the first to advocate removal of the "irritating" eye in order to save the other. The lecture was admirably illustrated by micro-photographs thrown on the lantern screen. After an expression of thanks by the chairman, Mr. Parsons spoke of his personal indebtedness to the Bristol Medical School, at which the greater part of his student life was spent.

Nov. 10th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Port Sanitary Authority.

DURING the period between Sept. 28th and Oct. 25th 203 vessels were inspected, 179 of which were British, and 65 were found insanitary. During the month 2673 cattle were landed at the foreign animals wharf from Canadian and American ports and they had to be carefully examined. To show how necessary it is to maintain a vigilant outlook Mr. W. F. Dearden, medical officer to the Manchester Port Authority, said that he received word from Liverpool that the s.s. *Venetia* from Karachi, which port was infected with cholera, plague, and small-pox, had passed Formby light-ship without notifying the port she was from and had slipped through to Eastham without being boarded by the Liverpool inspecting officer. She was, however, examined at Runcorn but was allowed to go up to Manchester as the medical officer was satisfied there was no danger. This was a happy ending to the incident. But it might have been, and may any time be, otherwise, as the recent occurrence of one or two cases of plague reported in the papers as having been discovered at Liverpool plainly shows. It is a satisfaction, however, to know that the port of Manchester is well guarded from such foes.

Notification of Births.

In a recent report Mr. E. Sargeant, the medical officer of the Lancashire county council, while stating that the infant mortality was the lowest on record, said that the returns, especially as regards the deaths of illegitimate children, were not altogether satisfactory. As a remedy for this state of things he suggested that the provisions of the Notification of Births Act should be adopted in every district. At present they have only been adopted in a few of them.

First-aid.

The apprehension of malefactors is not the only debt we owe to the police. The rendering of "first-aid" is now a very important function which they often perform with skill and kindness. Some interesting particulars were given the other week by the chief constable, when the Lord Mayor of Manchester presented the awards of the St. John Ambulance Association to 220 officers and men in the city police force. He said that 1064 members of the force were holding ambulance certificates and badges, while classes were being held for the instruction of new members not yet qualified in first-aid. The Lord Mayor complimented the men on this side of their work and emphasised the importance of the services they were enabled from time to time to render to the citizens of Manchester. As an illustration the following case may be mentioned. A child about three years of age had had its arm run over by a lorry and was brought into a tram to be taken to the hospital. As the car was starting a police officer got in and at once attended to the child by carefully and intelligently binding up the arm, and he accompanied it to the infirmary. It should be added that the guard of the tram served out bandages from a tin box thoughtfully provided by the tramway authorities. The narrator to me of this incident was very much struck by the care, skill, and gentleness shown by the constable, and it brings to mind the many services the police render to the public outside their constabulary duties.

Nov. 10th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Medical Society of Edinburgh.

AT a meeting of this society, held on Nov. 6th, Dr. A. F. Hewat delivered his presidential address. The subject chosen was the "History of Anæsthetics." The speaker gave a complete and interesting account of the history of anæsthetic and analgesic drugs up to the time of the introduction of ether and chloroform. Dr. Hewat having been heartily thanked for his address Dr. Peter Marshall read the notes of an interesting case of Hysterical Gastralgia.

Donations and Bequests.

Miss Isabella Nasmyth of Middlebank, Fife, who died in July last, and whose will has just been proved, has bequeathed £1000 to the Dunfermline Cottage Hospital, £1000 to the Victoria Hospital for Consumption, Craigleith, Edinburgh, £500 to the Edinburgh Institute for the Relief of Incurables in their Own Homes, and £500 to the Longmore Hospital, Edinburgh.

Aberdeen University Medical Society.

The opening address for the winter session was delivered on Nov. 6th by Sir J. Halliday Croom (Edinburgh) on "The Choice of Medicine as a Profession." Before a large attendance Professor Croom spoke of the chances of the medical life in clear language. Alluding first to what led to the choice of medicine as a profession, he said that many became medical men by heredity, and he found that this class came to their profession with a more or less definite conception of what it really was. Many, however, entered by individual preference, and if the incentive that prompted their choice was a desire to alleviate human suffering they were likely to succeed; but if it was with any hope of attaining a higher social position than was perhaps possible in commercial life they were not likely to succeed. Then as to fortune, the average medical income was from £300 to £400, and with all working expenses deducted the clear income was not much over £200. He spoke of the duration of the life of the medical man as compared with that of the clergyman who lived longer than any other professional man. Medical men had the highest death-rate of any profession in the world, the average life being 39 years; but whatever its defects medicine had the merit of magnitude and diversity of interest.

Nov. 10th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Health of Dublin: The Epidemic of Enteric Fever at Clontarf.

THE fortnightly meeting of the public health committee was held in the municipal buildings on Nov. 4th. Sir Charles A. Cameron, superintendent medical officer of health,

reported that the death-rate in the city during the past fortnight was 20·1 per 1000, being 5·7 below the mean rate for the corresponding period in the previous ten years. The zymotic death-rate was only 1·6, as against an average for the corresponding two weeks in the previous ten years of 3·0 per 1000. In the suburbs the general death-rate was 11·8 per 1000 and the zymotic rate 0·3 per 1000. In the quarter which ended on Sept. 30th the death-rate was 21·5 per 1000 and the zymotic rate 3·3 per 1000. Clontarf and Howth district had a low death-rate—namely, 17·5 per 1000—and a zymotic death-rate of only 0·8 per 1000. Sir Charles Cameron gave lengthy details of the outbreak of enteric fever in Clontarf. The large number of 329 houses had been disinfected and the process was still being actively carried on. The number of cases notified was growing less and less. He considered that the outbreak was now very probably ended. The Clontarf representatives who were present expressed their confidence in the public health committee. They were satisfied that every possible step to deal with the outbreak had been taken by Sir Charles Cameron and the staff of the public health department.

Tuberculosis Bill: Compulsory Notification considered by the Dublin Corporation.

At a meeting of the Dublin corporation held on Nov. 2nd a report by Sir Charles Cameron, approving of the clause with certain modifications, was not adopted, a motion being carried inimical to the proposed legislation on the ground that it was subjecting Irishmen to disabilities of which English and Scotch have no experience.

Irish Milk Adulteration.

On Nov. 3rd a dairyman was sentenced in the Southern Police-court of Dublin to three months' imprisonment for selling adulterated buttermilk. The mixture which he had been selling as buttermilk was adulterated enormously with water, and as there were five previous convictions against him it was natural that a fine should not be considered to meet the case. There have been recently several other prosecutions for the adulteration of milk in Dublin, the vendors having usually been fined £5.

Death of Mr. David S. Browne, L.R.C.P. & S. Edin., L.F.P.S. Glasg.

News has just reached Belfast of the death of Mr. D. S. Browne on Nov. 2nd, after 14 days' illness, at Victoria, the chief town of Maké Island, one of the Seychelles Islands, situated in the Indian Ocean, some 600 miles north-east of Madagascar. Mr. Browne, after studying in Belfast and Edinburgh, obtained the diplomas of L.R.C.P. & S. Edin., L.F.P.S. Glasg., and practised first at Portaferry, County Down, where he held the dispensary appointment. He afterwards came to Belfast where he resided for eight years, and was a member of the city corporation. In July last he left for a colonial medical appointment he had obtained in the Seychelles Islands, where he took up duties on August 16th. The deceased was a J.P. for County Down and was only 35 years of age.

Nov. 10th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Septic Wounds.

AT the meeting of the Surgical Society held on Oct. 14th M. Toubert communicated a note on a method of treating septic wounds. After having enlarged the wound if necessary he applies a dressing wetted with a 15 per cent. emulsion of spirit of turpentine, which insures thorough disinfection and causes rapid and healthy granulation. M. Toubert also gives the patient a hypodermic injection of a 5 per cent. solution of oil of turpentine, of which 2 cubic centimetres may be injected per day.

Morphine in the Treatment of Whooping-cough.

At the meeting of the Pædiatric Society held on Oct. 20th M. Triboulet and M. Boyé gave an account of the results which they had obtained in the treatment of whooping-cough by morphine. They were led to try this method owing to the success obtained by M. Lesage and M. Cléret in the treatment of croup by the same drug. M. Triboulet and M. Boyé gave it as follows by subcutaneous injection, the dose being one-quarter of a centigramme on the first day, one-third on the second, and one-half on the third. Then the treatment was stopped for three days, after which another three days' treatment and another three days' rest. The above were the doses for children under one year of age. In older children the dose was gradually increased up to one centigramme. The children so treated never showed any signs of morphine poisoning or constipation. Sometimes, however, they slept for a longer time than usual.

Typhoid Fever at Toulon.

A slight outbreak of typhoid fever occurred at Toulon at the end of October. Dr. Calmette, Inspector-General of the Hygienic Department, has visited the scene of the outbreak. He held a long conference with the commander of the 11th Regiment of Infantry and inspected the barracks where the disease had broken out and then the hospital whither 17 of the patients had been sent.

Pensions for the Aged and Incurable.

A financial report to the Minister of the Interior has just been laid before Deputies. In referring to the conditions under which applications for a pension must be made by the aged, infirm, and incurable it shows up the very grave abuses which have been exposed by prefects or by inspectors under the Act. Numbers of pensioners are put down as infirm or incurable who are very fairly well and in some departments cases of this kind form a third of the pensioners. There are districts where it is quite enough to have rheumatic pains to be considered as an incurable and to get a pension as such. A medical certificate testifying to the temporary incapacity for work is quite enough to enable its possessor to be classed among the incurables. In one department in the East of France a deaf man figured in the list who was perfectly able to gain his living and was married to a midwife who, besides her professional fees, had a fixed salary in addition. In the Midi a man, aged 68 years, was entered on the list as infirm. When the inspector called at his house he found that he was out and working in his vineyard, leaving no one at home but his wife, who was six months pregnant. Finally a number of people in easy circumstances have put down their aged parents for a pension, so as to avoid the expense of supporting them.

Physiological Errors in the Teaching of Singing.

At a meeting of the Academy of Medicine held on Oct. 27th M. Weiss read a paper for Dr. Bonnier on the Physiological Value of Certain Methods of Singing. Dr. Bonnier fulminated against the odious custom of professors who incite their pupils to increase the volume (*grossir*) of their voices. In every instrument where the sound is produced by stretched strings, the strings get thinner in passing from the bottom to the top of the scale so as to avoid the excessive tension which would be caused if the strings were of the same thickness throughout; every instrument maker works on this principle, but, according to Dr. Bonnier, professors of singing ignore it. In an instrument thin strings give a brilliancy and delicacy to the high notes by as much as they lose in "fatness." High notes are, moreover, dull when they are produced by thick strings at a very high tension, as, for instance, the extreme high notes of a double bass. In man the high notes, if forced and produced "tightly" (*serrés*), have no brilliancy, do not carry, and are very tiring. The fatuous amount of attention given to "registering" the voice—that is to say, making the pupil sing both high and low notes with the vocal cords at the same thickness and with the same quality of "fatness" is a fruitful cause of destruction of the voice.

Nov. 10th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Illness of King Menelik.

THIS potentate—the Negus of Abyssinia, to give him his correct title—has for some time been gravely indisposed at Addis Abeba, the capital of his country, and speculation, as well as measures of precaution, are already active in view of his demise. Nephritis of more than two months' standing is what he suffers from, chronic in character but from time to

time intensifying into exacerbations which always, on defervescence, leave him distinctly weaker. In fact, uræmic poisoning seems within measurable distance and its possibly speedy issue in death is causing much preoccupation, not only at Court, but at the headquarters of the many native chiefs who owe him allegiance. As all Italians are aware—their interest in Abyssinian affairs having increased rather than diminished since their disastrous defeat at Adowa in 1896—the Negus is a beneficent as well as popular ruler who has lived to regret his not having taken the advice of the great Capuchin missionary Guglielmo Massaia as far back as 1868, and thrown in his lot with the British cause then vindicated at Magdala by Sir Robert Napier's expeditionary force. The anxiety, therefore, with which the bulletins as to his health are received by his people and his vassals is natural enough, exemplified quite lately at Addis Abeba when, on a slight improvement in his condition, the native chiefs, who happened to be there in considerable numbers, sent orders to their respective capitals to celebrate the good tidings in characteristic fashion, *inter alia*, with salvos of firearms. But the improvement referred to was only transitory and a serious relapse had the disquieting effect not only of damping the celebration prescribed but of postponing the event to which all Abyssinia was looking forward—to wit, the investiture of the nephew of the Negus, Ligg Jassu, as hereditary prince. That ceremony, at which, besides the native chiefs, not a few of the European Powers were to be represented, was fixed for the Feast of the Mascal, the "Festa della Croce," as Italians call it (the Feast of the Cross). This year that feast fell due on Sept. 27th or 28th; but its celebration had to be postponed, owing to the increased gravity of King Menelik's condition. No official announcement of the investiture of Ligg Jassu had been made to the indigenous population, but through private or non-official channels it was known all over Abyssinia. Its postponement has been everywhere received with an anxiety proportioned to the cause—to wit, the precarious tenure of life meted out to a potentate whose long reign has been one persistent effort to bring his subjects into touch and into line with the advanced civilisation appreciated on the African continent as coextensive with that Empire "on which the sun never sets."

Antonio Gabrini.

Few are the survivors of the heroic days of Italy's "Risorgimento," and one of them, Dr. Gabrini, has just passed away at Lugano in Italian Switzerland, aged 94 years. A Milanese by birth, he studied medicine at Paris and after graduation became a fervent and fearless disciple of Mazzini, then at the height of his influence. He joined the "Spedizione di Savoja" (the "Savoyard Expedition") and took part in the memorable revolt and defence of Milan in 1848. Another of that legion was his cousin, Filippo Camperio, who, after the collapse of the patriotic cause, became a naturalised Swiss and died at Geneva, having filled the highest civic post in the country. Dr. Gabrini also transferred his abode to Switzerland and for more than half a century led an active professional life at Lugano, where he realised a considerable fortune and became the promoter of many public charities, some of which owed their origin to him long after he had ceased to practise. The Italian hospital in the town of his adoption received from him a first donation of 25,000 lire (£1000), while from his princely country seat or villa the whole Canton Ticino drew constant support, moral and material, wherever public hygiene had to be encouraged or subsidised. An illness of 20 days' duration ended fatally on Friday last, and, in the words of a professional friend and sympathiser, "carried down to the tomb 'l'ultimo superstite di quel moto generoso' (the last survivor of that nobly inspired movement)"—the Milanese revolt of 1848.

The International Office of Hygiene.

Italians may be excused for feeling particularly gratified at the announcement that the committee of the International Office of Hygiene has nominated as its president the delegate of Italy, Dr. Santoliquido, professor in the Roman school and Director-General of the Board of Public Health for the kingdom. The committee, it is well to note, consists of the delegates of the several participating States; its functions are administrative with control of the office referred to, and the election of president—a post tenable for three years—is effected *a scrutinio segreto* (vote by ballot). The journals of all parties agree in accepting the choice of Dr. Santoliquido as another proof of the high appreciation in which his work is held abroad—work carried on with equal intelligence, skill, and circumspection, to the best interests of public hygiene and to the credit of the Italian name.

Nov. 7th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Instruction in Psychiatry for Legal Officials.

A REASONABLE outcome of repeated petitions from medical men, helped by the recent Congress on the Care of the Insane, the proceedings at which elicited much interest in all classes of the population, is the decision of the Ministry of Justice, just published, that special classes in psychiatry shall be held for judges, public prosecutors, and prison officials. The classes will be held this winter in Vienna, Gratz, and Cracow. The following subjects among others will be treated and if necessary demonstrated clinically: moral insanity, hysteria, and epilepsy, alcoholism and morphinism, melancholia, paranoia, and paralysis of the insane, and sexual aberrations. The lecturers will be Professor Redlich, Professor Wagner von Tauneregg, Dr. Raemann, and Dr. Elzholz.

Legislation against the Drink Habit.

In a Bill just brought before Parliament the Government renews its attempts to diminish alcoholism. The main idea of the new Bill is the attempt to make the opportunities for drinking fewer and to punish crimes committed under the influence of drink more severely than hitherto. Thus the sale of alcoholic beverages by automatic contrivances or in closed vessels will be allowed only by special licence. The number of such licences will be regulated according to the population, the total number being much diminished. On Sundays, holidays, and pay days, when the danger of drinking is largest, only a few shops possessing special licences of this kind will be kept open. A very important clause of the Bill provides that debts contracted for drink cannot be recovered in court. Repeated drunkenness in public places and the sale of alcohol to drunken persons will be punished severely. The sale of alcohol in open vessels will be allowed only for industrial purposes after the alcohol has been sophisticated in such a way that it will not be fit for drinking. The sale of beer or wine is not referred to in this Bill, which deals only with "branntwein" and "schnaps," corresponding to the English gin or brandy. The Government in accounting for the presentation of the Bill puts forward statistics as a ground for endeavours to prevent the detrimental effects of alcohol on the public health, the morals, and the general prosperity of the country.

The New Regulations concerning the Practice of Medicine.

The Bill containing the new regulations dealing with medical practice[1] in Austria has passed now the "Oberste Sanitätsrath," the highest corporation or board of public health, and some remarkable suggestions and changes have been made in its text. Thus the board considers it essential to define clearly "practice." This should mean all actions based on the possession of a degree of Doctor of Medicine granted by a university. In order to protect the title of "Doctor" strict application of the laws against quackery is inevitable. The right to practise a specialty must be supported by proper studies and the passing of special examinations. Practising in two or more places by the same medical man must be strictly forbidden unless it is necessitated by the holding of plural appointments. Payment for assistance rendered as first-aid, it is recommended, should be fixed by law and where the duty of payment lies must also be clearly defined. The physician is to be exempt from the duty of sitting as a juror. The matter of professional secrecy has been carefully dealt with as it is felt that at times and in special cases public danger may follow on its too rigid observance. Payment for notifications of infectious diseases is not recommended. Public advertisement and treatment by letter will be unlawful, as will also be the sale of a medical practice. Every operation will require the written consent of the patient or his responsible friends. As a whole, the new regulations seem to meet the wants of

[1] THE LANCET, August 1st, p. 338.

the public as well as of a large majority of medical practitioners and it is expected that legislation will quickly follow.

Absence of Recurrence after Incomplete Operation for Cancer of the Uterus.

Writing to the *Wiener Klinische Wochenschrift* Dr. Fleischmann reports three cases in his private and hospital practice in which undeniable cancer of the uterus after incomplete operation gave no rise to recurrence of symptoms after 10 to 12 years. Such cases can be termed "free from recurrence" only, although it might be held that they are practically cured. The fact that malignant disease may undergo retrogressive changes has been known for some time and Czerny illustrated it at the International Conference for Cancer Research in Frankfort in 1906 by several clinical histories. The cases of Dr. Fleischmann were women 35, 39, and 43 years of age respectively. In all three it was known that diseased tissue remained behind after operation, because in the first case the general condition of the patient prevented an extensive operation, because in the second case of excessive hæmorrhage in a hæmophilic woman, while in the third case extensive metastatic deposits made a more complete operation apparently useless. 12, 11, and 9 years respectively after operation the patients were found to be free from symptoms of malignant disease, and it should be added that at the time of operation the diagnoses was confirmed by microscopical examination.

Nov. 4th.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Eunuchs.

As eunuchs are more extensively employed in Chinese Court life than in any other place in the world some account of the system may be of interest, more especially to those who have from time to time made inquiries on the subject. There are close on 3000 eunuchs in Imperial employment in Peking and almost every medical officer in charge of a hospital where Chinese are treated is called upon from time to time to treat those of them who come complaining—mostly of urinary troubles. It is not difficult to recognise eunuchs immediately they enter the out-patient room. They look like overgrown boys with their fat smooth cheeks and hairless faces. In those of them who are elderly one can note wrinkles which contrast strongly with their otherwise juvenile appearance, and this seems more strange when they speak in an "unbroken" boyish voice. Emasculation causes them to age more quickly and deprives them to some extent of their "vim" both physical and mental. As a class they are cheerful but vindictive and easily enraged. They carry on the entire work of the palace, from secretarial duties down to the lowest menial work. About 90 per cent. of eunuchs become so by compulsion on the part of their parents who are themselves very poor and wish to see their boys launched in a career which is comparatively well paid, is permanent, and offers good prospects. Some become eunuchs because of their own poverty, while there are others who have become satiated with vicious pleasures and being attracted by the prospects of Court life voluntarily submit themselves. Attendance on the ladies of the household is reserved for those who have been emasculated before adolescence. The operation is in the hands of a close corporation called "Knifers." The patient sits up, leaning back on two friends. The knifer then ties a ligature tightly round the abdomen, as tight as can be borne, and puts a sort of tourniquet on each groin, as we would for amputation through the upper third of the thigh. It is then customary to ask the patient just prior to the amputation if he understands what is going to happen to him, and if he consents or not. On his acquiescing the knifer takes hold of the penis and scrotum and with one sweep—the blade being a curved one—he amputates the penis and scrotum with its contents. The amount of traction he makes on the penis is a most important factor to the future comfort of the patient because of interference with the bladder sphincter, although this is a point which they seem to regard with indifference. A wooden spigot or plug is then introduced through the urethral orifice and the wound covered over with paper which has been soaked in cold water; then the whole is bound up and the patient is now subjected to what seems to be rather harsh treatment but which is claimed by the Chinese to be necessary. He is kept walking about the first day almost continuously by two attendants who support him, and he is not allowed to urinate for three days, when the dressing is removed, and the spigot being withdrawn there is a flow of urine. During these three days he is not allowed to drink. The mortality is said to be about 5 per cent., but no definite statistics are obtainable; the vast majority, however, survive. The pubis is rounded and bare. I once met with a case in which a eunuch came to hospital to ask if something could not be done to trim away some redundant tissue which was covered with hair, for although he was clearly a eunuch the pubis was not sufficiently bare to satisfy the officials. They refused to take him on the establishment and he had thus become a eunuch for nothing. Under an anæsthetic the "parts" were trimmed away sufficiently to make them reconsider their decision. The emasculated parts are preserved in a jar in spirit and are zealously kept by each eunuch; they are called the "precious" or "valuables" and have to be produced when a eunuch receives high promotion and on his death are buried in the coffin with him. Such, in brief, are the main points of this curious ancient custom as it still persists in China. A great deal could be said against it; in fact, there is little or nothing in its favour from our point of view, but at the same time it shows us that it is possible to castrate a man and to enable him to lead a happy and useful life for many years after. Eunuchs as a rule reach old age, the official time for their becoming entitled to a pension being 70 years.

Plague at Tongshan.

The outbreak of plague noted at Tongshan (near Peking) in my last letter has proved to be more serious than was at first thought. Over 1000 people have been seized, of whom more than 800 have succumbed. The attempts made by the foreign medical men who direct the Sanitary Bureau to limit the epidemic have been hampered by lack of help on the part of the local Chinese authorities who refused to insist on house-to-house inspection, so that the medical men can only deal with cases voluntarily brought to them. All the more familiar Oriental difficulties which have been met with in India—distrust of European good intentions, anti-foreign prejudices, sensational rumours as to the disposal of the dead, &c.—are present in Tongshan, and appeals to reason have little or no effect on the people. Fortunately, the extremely cold winter will set in in another month and this will prove an important factor in curtailing the epidemic. Tongshan is a great mining centre of North China and the mining company is aware that once the workings become infected they will have to be closed, so that the entrances to the mines are being strictly watched, and up to the present no one suffering from plague has gained admission.

Cholera in the Yangtze Valley.

From all accounts it appears that this epidemic is subsiding, though it has been the cause of a highly increased mortality in the river ports during the past two months. It is difficult to obtain trustworthy statistics, one report has it that in the three cities of Wuchang, Hankow, and Hanyang 30,000 people have died from the pestilence, but possibly one-fifth of that number would be correct. The police at Wuchang have been doing their best to combat the epidemic but the following picture drawn by a local correspondent to the *North China Herald*—a Shanghai paper—discloses a sanitary picture that leaves little to the imagination as to the etiological factors involved in the spread of epidemics in the Far East: "Whilst little but praise is due to the officials and police, to us they seem to have overlooked one grave cause of the heavy death-rate round about the parade ground. All through the year a black horrid ooze may be seen stagnating down the side of the carriage road leading from the great camp inside the East Gate in a deep open gutter that is gradually undermining the foundations of the camp wall. This ooze is the drainage from the military quarters and even the heaviest rains only succeed in flushing more ooze into the gutter. No wonder that where this drain passed, in some cases actually under the wooden pile-erected houses of the people, disease ravaged unchecked. One day we noticed an eating-house which is situated by the very side of this death-drain. On the wooden pillars which supported the roof were hanging lumps of raw beef covered with nasty flies."

Oct. 12th.

Obituary.

SIR HENRY ALFRED PITMAN, M.D. CANTAB., F.R.C.P. LOND.,

EMERITUS REGISTRAR OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; CONSULTING PHYSICIAN, FORMERLY LECTURER ON PRINCIPLES AND PRACTICE OF MEDICINE, ST. GEORGE'S HOSPITAL.

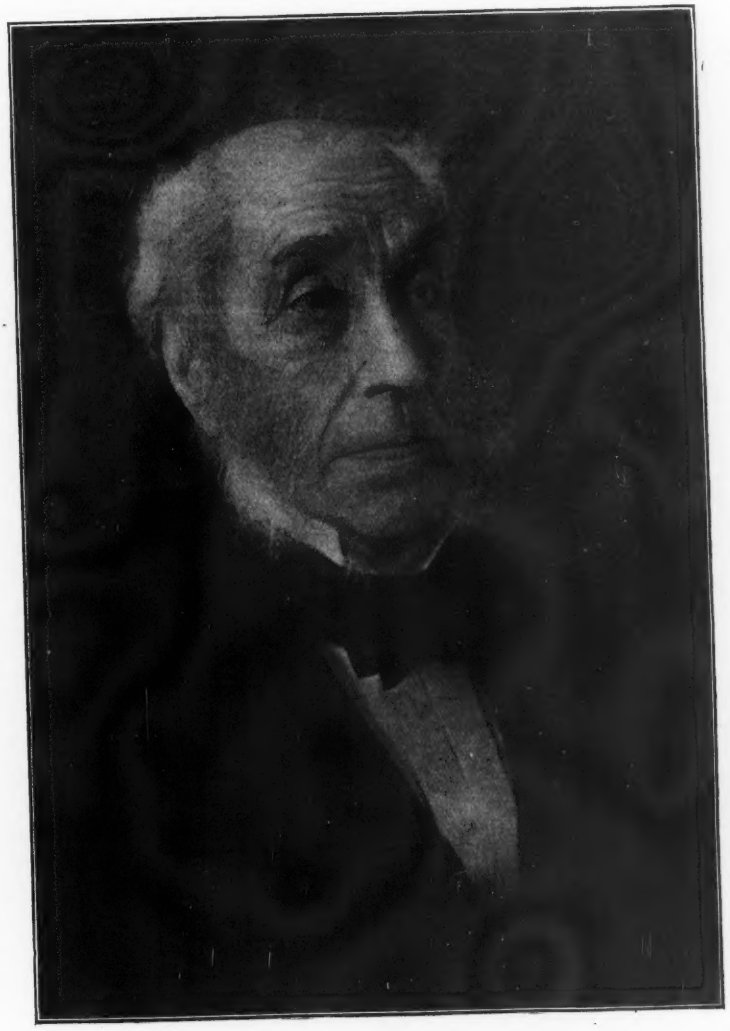
WE much regret to announce the death of Sir Henry Pitman, Emeritus Registrar of the Royal College of Physicians of London, who it will be remembered reached the extraordinary age of 100 years on July 1st last. Sir Henry Pitman died on Friday evening last, Nov. 6th.

Many years ago the following brief notes upon his career written by himself were handed to a then member of the staff of THE LANCET to be given to us when the sad occasion should arise which would make them topical. We are publishing, therefore, in Sir Henry Pitman's own words and in the first person this modest account of his useful life:—

"I was born in London on the 1st of July in the year eighteen hundred and eight (1808) and was in due course introduced to the family circle which then consisted of three brothers and three sisters. My father was a solicitor and my mother a toasted beauty in the City of Worcester where her parents resided. My first experience of life, after vaccination, was an attack of measles with pneumonia, for which I was bled and leeched, the scars of which I still carry. At the age of seven, having received the early elements of education from my eldest sister, I was sent to a school at Tooting kept by Dr. Lord. Soon after this, that is, when I was only nine years old, I had the misfortune to lose my father by death, and henceforth the guardians under his will were my eldest brother and the solicitor of the family. From Dr. Lord's I was transferred when 11 years of age to a school at Ealing kept by Dr. Nicholas and his two sons, the same school at which Sir George Burrowes had received his education before going to Cambridge; this school had a *quasi* connexion with the medical profession, for the father of Professor Huxley was one of the ushers and Mr. Trimmer, the secretary of the Royal College of Surgeons, was the grandson of Dr. Nicholas. At both schools I had the usual disinclination for study and the customary taste for games and sports characteristic of schoolboys of my age. Some few things I remember which I record. One was my early taste for natural history which I have ever since retained; this I acquired, I think, from a practice prevalent at the Ealing school of the boys procuring nests of young birds and bringing them up by hand. These were kept secreted in our desks and sometimes the chirruping of the birds during school time in consequence of their owner having failed sufficiently to feed them and so insure their sleep betrayed their possession by the owner and, of course, their immediate forfeiture. One of the masters was a skilful teacher of writing, and under his direction I made such progress in that art as enabled me to gain the prize for caligraphy. In consequence of this I was selected to assist the doctor in writing out the half-yearly accounts which gave me the privilege of missing my school duties and taking my meals in the doctor's private room. Among my school-fellows I was regarded as a successful mimic and to have rather a comic turn of mind, but when the time for the annual speeches came round and the elocution master tested me as to the speech he thought most suited to me I was adjudged an Ode to Despair. A Latin play formed part of this annual entertainment, to take part in which was a great object of ambition among the boys, and I reached this point before leaving the school.

"In 1824 I was placed with the vicar of Ware, in Hertfordshire, as private pupil. He had been a Fellow of Lincoln College, Oxford, was an excellent scholar, and most amiable man. To his advice and tuition I attribute whatever quality of memory I may have possessed, as he required his pupils to learn by heart daily some portion of Virgil or Horace or other classical author. At the age of 19 I was entered at Trinity College, Cambridge, Christopher Wordsworth being then the Master, and Peacock, afterwards Dean of Ely, my tutor. The years spent at Cambridge passed pleasantly enough. I was extremely fond of rowing, had a skiff of my own, and pulled No. 6 oar in the second Trinity boat; the racing was then confined to competition with the boats of the other colleges, the inter-University match not being regularly established. In due course I passed the examinations and took my B.A. degree, and with an intimate college friend left England in the summer of 1832 for a tour on the continent. We were absent 12 months, passing through Holland, Belgium, Switzerland, Italy, and the south of France, the principal cities of which countries we visited, and returned home through Paris. I acquired during this tour some knowledge of the modern languages, especially of Italian and French. On my return to England it became necessary to settle down to some profession, and as I had a brother-in-law a solicitor who offered me an opportunity of acquiring a knowledge of the law in his office, I accepted his offer. But after six months' experience he informed me that he considered that the law was not suited to me nor I to the law, an opinion which some years afterwards, on a better knowledge of my mental tendencies, he had the candour to retract with an expression of regret. I then determined to study for the medical profession and entered my name as a pupil of St. George's Hospital, the physicians being at that time Dr. W. F. Chambers, Dr. Seymour, Dr. Wilson, Dr. R. McLeod.

"In order to qualify myself for a degree in medicine I returned to Cambridge for an additional year's study, attending the courses of lectures delivered there required for that purpose. In 1835 I took my M.B. degree and returned to London to pursue my clinical studies at St. George's. I became a perpetual pupil at King's College Medical School, and entered my name for the courses of lectures delivered at the Pharmaceutical Society, Dr. Pereira being professor of materia medica and Dr. Redwood professor of pharmacy. In the year 1838 I passed the examination at Cambridge for a licence to practise, there being at that time an additional examination for the licence after taking the M.B. degree. In 1840 I passed the examination before the Censors' Board at the Royal College of Physicians and was admitted a Licentiate (equivalent to Member), and subsequently in 1845 was elected a Fellow of the College, being one of the earliest chosen under the reformed system when Oxford and Cambridge graduates had no longer a preference but all were supposed to be recommended by the Council on their merit alone. In 1841 I took the degree of Doctor of Medicine after the required exercises, a Latin thesis on some point of practical medicine being one of them. I then professedly commenced the practice of my profession. In 1842 I went to Euston Hall, the residence of the Duke of Grafton, as his attendant physician, and there I remained nine months. On my return to London I worked steadily in the wards of St. George's Hospital, aspiring to be one day elected on the medical staff. I occasionally made plaster casts, some of which are, I believe, still in the museum of the hospital. The microscope was not then used as an aid to diagnosis so much as it is at the present day, and Sir Henry Acland, myself, and a few others subscribed together for the purchase of one of those instruments for use in the wards, the only one then available for the students. I was always very fond of the study of chemistry and was often referred to by medical practitioners to examine and analyse for them morbid products. My reputation, such as it was, in this department of medicine enabled me to be of some use on an important occasion. In the year 1845 a Quaker of the name of John Tawell was charged with the murder of Sarah Hart, a person with whom he had cohabited; he was suspected of having poisoned her by administering prussic acid in some porter while they were partaking of supper together. The judge who was to try the prisoner was anxious to make himself acquainted with the mode of testing for the presence of this poison in different organic liquids, and I was requested to afford him the opportunity of acquiring this knowledge. The judge, Mr. Justice Parke, passed the whole forenoon of one day in witnessing the various modes by which the presence of prussic acid could be detected. The prisoner was subsequently tried, convicted, and executed. In April, 1846, I was elected assistant physician to St. George's Hospital and was appointed lecturer on materia medica, while I was to commence to deliver my lectures on the 1st of May. The preparation was short, but I met this difficulty by working up my subject, never retiring to rest till after sunrise. In order the better to qualify myself for the duties I had undertaken I paid a premium to a manufacturing druggist for permission to obtain a knowledge of the mode of preparing the preparations of the Pharmacopœia.



From a photograph by Messrs. Elliot and Fry.

H. A. Pitman

"In 1852 I married Frances, the daughter of Thomas Wildman, Esq., of Eastbourne, and then resided for a time at Slough, coming daily to London to 28, Montague Place for practice. In 1854 the cholera broke out in London and during the month of August, when the physicians of the hospital were all taking holiday, I had the entire charge of both the in- and the out-patients, duties which during the epidemic kept me engaged in the hospital from morning until late at night. In 1857 I was elected one of the physicians to the hospital and lecturer on the principles and practice of medicine, appointments which I held until my resignation in 1866, when I was appointed the first consulting physician to the hospital. In 1858 I was selected to fill the office of registrar to the Royal College of Physicians in succession to Dr. Francis Hawkins, who accepted a similar appointment to the General Medical Council. The records of my life from this period are almost entirely the records of the Royal College of Physicians."

If the foregoing biographical notes had been written by ourselves they would certainly have been couched in warmer language, and it is characteristic of the man that his words about himself should be so brief and unadorned. We happen to know that during the 20 years which he served upon the staff of St. George's Hospital as assistant physician and full physician he was esteemed by his colleagues as a highly valuable colleague, unsparing of himself in the discharge of his duties and thoroughly expert in his discharge of them, so that his resignation was received with real regret by them all. He was particularly interested in all questions of medical education, and when in 1876 he was appointed to represent the Royal College of Physicians of London upon the General Medical Council he brought to his duties an excellent fund of common sense and a deep knowledge of the subject. In 1881 he became chairman of the Executive Committee of the Council in succession to Mr. Andrew Wood, his choice being a proof of the esteem in which the Council had come to hold him, and this post he held for five years, resigning in 1886, being by that time 76 years of age. He had been previously knighted in consideration of his assiduous labours in the cause of medical education.

On July 1st of this year Sir Henry Pitman celebrated his hundredth birthday, when he received from the King a telegram expressive of hearty good wishes. On the same day he was visited by a party of friends and former pupils who found his health to be wonderfully maintained when his age was taken into consideration. Among the many tokens of regard which he then received was a handsome silver-gilt bowl from a group of old friends and colleagues at the Royal College of Physicians of London, a letter from the Council of the Royal College of Surgeons of England bearing witness to the energy and wisdom with which as a member of the joint committees of the two Colleges he had attempted to promote a high moral, social, and educational standard in the medical profession; and an album of signatures from St. George's Hospital. Our own personal connexion with Sir Henry Pitman has always been very close, and until the present year he continued to act as auditor of THE LANCET Relief Fund. We know that we have lost in him a true friend. The signature below the portrait is reproduced from his letter to us resigning the post on the ground of the infirmity of age; it was written when he was 99 years and three months old.

The funeral of Sir Henry Pitman took place on Nov. 11th, in Enfield Cemetery. The first part of the Burial Service was conducted in the church of St. Mary Magdalene, Enfield Chase, by the Vicar, the Rev. G. P. Turner, and the Rev. Howell Browne, Vicar of Enfield, who also read the committal sentences at the graveside. Very feeling renderings of Chopin's Funeral March and of Handel's Dead March were given by Mr. C. T. Davis, organist of the church. The oak coffin was covered with many beautiful arrangements of flowers and bore a brass plate inscribed: "Henry Alfred Pitman, Knight, born 1st July, 1808, died 6th November, 1908." The principal mourners were Lady Pitman, her three sons and four daughters, and other near relatives. The Royal College of Physicians of London was represented by Sir Richard Douglas Powell, Sir Dyce Duckworth, Sir William Allchin, Dr. Norman Moore (Senior Censor), Dr. F. de Haviland Hall, Dr. J. F. Payne, Dr. H. D. Rolleston (who also represented the medical staff of St. George's Hospital), Dr. E. Liveing (Registrar), Dr. J. A. Ormerod (Assistant Registrar), and Mr. Fleming (Secretary of the College). Mr. Clinton T. Dent represented the Royal College of Surgeons of England (in the unavoidable absence of Mr. Henry Morris) and also the surgical staff of St. George's Hospital. Dr. J. Bart Rous represented THE LANCET. A large *cortège* of friends followed the coffin to the grave.

FREDERIC S. COWAN, L.R.C.P. LOND., M.R.C.S. ENG.

Mr. Frederic S. Cowan died suddenly at his residence, 27, Queen-square, Bath, on Oct. 20th. He was the son of the late Mr. S. B. Cowan, M.R.C.S. Eng., of Bath, and received his medical education at St. George's Hospital, London, qualifying M.R.C.S. Eng. and L.R.C.P. Lond. in 1878 and 1881 respectively. Mr. Cowan also studied at Vienna. After holding the appointment of resident medical officer at the Royal United Hospital, Bath, Mr. Cowan commenced practice in Bath and succeeded to his late father's practice in 1883. He was formerly senior physician to the Eastern Dispensary, Bath, also a justice's visitor in lunacy and a medical referee of several insurance societies. He held a very respected position in Bath, where he took great interest in the Church of England School Teachers' Association, of which he was the first honorary secretary. Mr. Cowan leaves a widow, the youngest daughter of the late Prebendary Angus Clerk, and two little daughters.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. A. Kriukoff, professor of ophthalmology in the University of Moscow, aged 59 years. He was vice-president of the Ophthalmological Society, editor of an ophthalmological journal, and author of many papers and works on subjects connected with his specialty.—Dr. Dubuissen, the eminent Paris alienist physician.—Dr. Rondot, professor *agrégé* in the medical faculty of Bordeaux University.

Medical News.

UNIVERSITY OF CAMBRIDGE.—Dr. Frederick Taylor of Guy's Hospital has been appointed an examiner in medicine in the Third M.B., Part II., in place of Professor W. Osler, who is unable to examine. A University lectureship in Pharmacology has been approved by the General Board of Studies. The First and Second M.B. and the Third M.B., Part I., will begin on Monday, Dec. 14th; the Third M.B., Part II., on Tuesday, Dec. 8th; and the M.C. on Thursday, Dec. 10th.—The following degree was conferred on Oct. 29th:—

M.B.—E. Slack, Pembroke.

FOREIGN UNIVERSITY INTELLIGENCE.—*Budapest:* Dr. Vilmos Manninger has been recognised as *privat-docent* of Surgical Diagnosis.—*Cincinnati (Miami Medical College):* Dr. Oliver P. Holt, Professor of Pathological Anatomy, has been appointed to the chair of Medicine in place of the late Dr. Joseph Eichberg.—*Freiburg:* Dr. Max Voit has been recognised as *privat-docent* of Anatomy.—*New York (Post-graduate Medical School and Hospital):* Dr. John F. Erdmann of the University and Bellevue Hospital Medical College has been appointed to the chair of Surgery.—*Rome:* Dr. Luigi Silvagni has been recognised as *privat-docent* of Medicine.

BRITISH MEDICAL TEMPERANCE ASSOCIATION.—This association, founded in 1876, lost its honorary secretary by the death of Dr. J. J. Ridge in May last. He had filled the office since the commencement of the association and its growth and vigour were largely due to his untiring energy and unselfish acts. In addition to being its honorary secretary Dr. Ridge was the editor of its official organ, *The Medical Temperance Review*. The council has appointed Mr. W. McAdam Eccles as honorary secretary and Mr. H. J. Paterson as editor of the *Review*. Professor G. Sims Woodhead, the President, will preside at the annual meeting of the association on Friday, Nov. 20th, at 5 P.M., in the

rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., and will open a discussion on the Future Work and Aims of the Association. All abstaining practitioners, whether members of the association or not, are invited to be present.

Mr. Somerville Hastings, F.R.C.S. Eng., Mr. J. C. Mottram, M.B. Lond., and Mr. Bryden Glendining, M.B., B.S. Durh., have been appointed to the "Salters' Company," the "Richard Hollins," and the "Walter Emden" Scholarships respectively in the Cancer Research Laboratories at the Middlesex Hospital.

THE board of management of the West-End Hospital for Diseases of the Nervous System, preparatory to rebuilding the hospital, has asked the two senior physicians, Dr. Harry Campbell and Dr. T. D. Savill, and the architect, Mr. Phipps, to visit some of the more recently installed hospitals on the continent. It is hoped that the chairman of the board, Mr. Ian Malcolm, will also be able to accompany them. The hospital has recently received a legacy of £40,000 for rebuilding and the board is thus proving that it intends to expend this large sum to the best advantage in the public interest.

UNIVERSITY OF LONDON: THE ROGERS PRIZE.—At the last meeting of the Senate of the University the Rogers prize of £100 for original research in medical science was awarded, being divided equally between Mr. David Forsyth, M.D., D.Sc., assistant physician to Charing Cross Hospital, and Mr. F. W. Twort, L.R.C.P., M.R.C.S., assistant bacteriologist to the London Hospital. The essay of the former dealt with the anatomy, physiology, and pathology of the thyroid and parathyroid glands, and that of the latter with the fermentation of glucosides by bacteria of the typhoid coli group.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—The next quarterly meeting of this association will be held at 11, Chandos-street, Cavendish-square, London, W., on Thursday, Nov. 19th, at 3 P.M., under the presidency of Dr. C. A. Mercier. By permission of the governors of the Bethlem Royal Hospital and Dr. T. B. Hyslop, the resident physician, a clinical demonstration of cases of dementia præcox will be given by Dr. W. H. B. Stoddart at the hospital on the same day at 10 A.M., and at the meeting in the afternoon the adjourned discussion upon the same subject will take the form of a paper entitled "The Case for Dementia Præcox," by Dr. T. Johnstone, supported by Dr. Stoddart. Several well-known medical men interested in the subject have promised to speak in the ensuing discussion or to send contributions. The resolution embodied in Dr. R. Cunyngham Brown's paper upon "The Boarding-out of the Insane in Private Dwellings" will be further considered, and the discussion will be continued on Dr. F. A. Elkins's paper entitled "Asylums Officials: is it Necessary or Advisable for so Many to Live on the Premises?" Members will dine together at the Café Monico at 7 P.M.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A quarterly meeting of the Royal College of Physicians of Edinburgh was held on Nov. 3rd, Dr. J. Playfair, the President, being in the chair. Dr. William Elliot Carnegie Dickson was introduced and took his seat as a Fellow of the College. Dr. Alexander Hill Buchan was admitted by ballot to the Fellowship of the College. On a ballot the following candidates were admitted to the Membership of the College after examination: Dr. George Rutherford Jeffrey, Dumfries; Dr. Thomas Addis, Edinburgh; and Dr. Alexander Murray Drennan, Edinburgh. The Registrar reported that since the last quarterly meeting of the College 33 persons had obtained the Licence of the College by examination. The secretary laid on the table the annual statement by the governing board of the School of Medicine of the Royal Colleges in terms of the constitution. The report indicated that the number of classes during the winter session 1907–08 was 32 and during the summer session 1908 35, and that the number of students during the winter session was 1026 and during the summer session 855, both so far as could be ascertained, as certain lecturers had not made returns. The Hill Pattison-Struthers bursary in clinical medicine, which is the gift of the College, was awarded after examination to Mr. Norman E. Welsh Davidson.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga and amounting to about $180, will be made on July 14th, 1909, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine but cannot have been published. They must be typewritten and must be received by the secretary of the College on or before May 1st, 1909. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1908 has been awarded to Dr. William T. Shoemaker of Philadelphia for his essay, entitled "Retinitis Pigmentosa, with an Analysis of Seventeen Cases occurring in Deaf Mutes, including Laboratory Examinations of the Blood and Urine in Eleven Cases."

PLAGUE IN LIVERPOOL: TWO DEATHS.—On Oct. 28th a man employed on a coaling barge fell ill, death occurring the same day. Plague being suspected, a bacteriological examination was made at the instance of the Local Government Board and this showed the presence of the bacillus of plague. Two persons who had been associated with this man, having been kept under close observation, were found to be ailing on Nov. 6th, though it was hoped that as more than five days had elapsed since the death of the first patient there would be no spread of infection from that case. The two persons under observation were immediately isolated at the hospital. Symptoms of plague developed in both instances and one of the patients grew rapidly worse on Nov. 8th, dying the same night. The other patient appears to be recovering. Both of these persons were on the barge with the first case and occupied the cabin prior to that individual seeking medical advice. Various cases dealt with some time ago by the Liverpool authorities show how strict and vigilant the staff of the port sanitary authority is. In one instance occurring in 1901, out of nine cases traced seven deaths occurred. Another death occurred on the *Crewe Hall*, which arrived in the Mersey in January, 1905, and the individuals attacked were closely followed up. Rigorous inspection of this sort alone saves us from serious importation of disease.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Scottish Local Government Board.

Mr. THOMAS SHAW, the Lord Advocate, last week made an important statement with regard to the Scottish Local Government Board, which is taken to foreshadow the intention of the Government not only to augment its staff but to enhance its official status. The announcement was made in the Standing Committee of the House of Commons which is dealing with the Housing and Town Planning Bill. Mr. MUNRO FERGUSON in a trenchant speech had just declared that the Local Government Board for Scotland with its limited resources and constitution was quite unfitted to carry out the duties committed to it by the measure, and earnestly pressed the Government to undertake the reconstitution of the Board. The LORD ADVOCATE then intervened and unexpectedly admitted the weight of Mr. MUNRO FERGUSON'S criticism. He stated that the Local Government Board for Scotland was overworked, that its duties had been increased by public health and other legislation, and that it was the intention of the Government to make it adequate to fulfil its task. "We are conscious," said Mr. SHAW, "that the time is very rapidly approaching, if it has not now been reached, when both the staffing and *personnel* will have to be largely augmented. I know my honourable friend is anxious for an assurance of that kind, and after consultation with the President of the Local Government Board I am free to give assurance, which I do with great pleasure." In a subsequent speech the LORD ADVOCATE spoke hopefully of the feasibility of codifying the law relating to public health and its allied departments,

both for England and Scotland. Mr. MUNRO FERGUSON afterwards expressed satisfaction with the announcement of the Government. Beyond this general declaration of the policy of the Government, no announcement on the subject has been made and no information of the precise and detailed steps which it proposes to take is yet forthcoming. However, the impression prevails that the administrative changes at the Scottish Local Government Board will be carried out concurrently with measures for the codification and extension of the existing law.

A remarkable tribute to the efficiency of the departmental and medical assistance at the command of the present Local Government Board for Scotland was paid by the LORD ADVOCATE in the course of his main speech. He singled out Dr. W. L. MACKENZIE for special praise and expressed the hope that whatever changes occurred his position would be enhanced rather than lowered.

The Children Bill.

The further progress of the Children Bill reveals that the House of Lords is in general agreement with the terms of the measure as it left the House of Commons. It passed through Committee on Wednesday, Nov. 4th, and the juvenile smoking clauses were somewhat strengthened, inasmuch as the provision permitting a constable to search boys found smoking has been reintroduced.

HOUSE OF LORDS.

TUESDAY, NOV. 10TH.

Nurses' Registration Bill.

Lord AMPTHILL moved the third reading of the Nurses' Registration Bill.

The Earl of WEMYSS said that he had received information that a large body of opinion amongst nurses was opposed to the Bill.

Lord BALFOUR OF BURLEIGH opposed the Bill generally, believing that it would practically be useless, as it was impossible to guarantee continuing efficiency. Even if a nurse became physically incapable of performing her duties she would remain on the register. Nothing short of gross misconduct would get her name struck off it.

The Archbishop of CANTERBURY thought that some further statistics were desirable to show the support which the medical and nursing professions gave to the Bill.

Lord AMPTHILL said that his information was that the medical profession and the bulk of the nursing profession were in favour of the Bill. Opinion in its favour had been steadily growing since the question was raised 20 years ago.

The Earl of CREWE considered it unlikely that the measure, whatever its merits might be, would create a revolution either within or without the nursing profession. He in some degree agreed with remarks made by Lord Balfour. He doubted whether the new register would be a guarantee of continuing efficiency and proficiency, and he thought that it would be little more than a form of directory. The Government, however, were prepared to give support to the motion for the third reading.

The motion for the third reading was then agreed to.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 4TH.

The Weir Bequest, Streatham.

Sir HENRY KIMBER asked the honourable Member for the Barnstaple Division, as representing the Charity Commissioners, whether by the terms of the late Mr. Weir's will income only was directed to be used for the establishment and maintenance of the charity; whether he would state from what persons or bodies the Charity Commissioners had received protests and objections to the published draft scheme; whether the Commissioners, notwithstanding such protests, intended to persevere in the attempt to transfer £50,000 capital of the fund, and the income of the residue, to a hospital in Battersea and not in Streatham as directed by the will; whether the donations of £5000 and £900 were given in the form of legacies, and if so, under whose wills and upon what conditions were such legacies given; whether the authorities of King Edward's Fund, who were alleged to have advised union with the Bolingbroke Hospital, expressed any opinion that the terms of the will could not be carried out as provided therein; whether he was aware that a feeling exists against multiplying beds in existing hospitals when so many beds were vacant for want of funds and that the present draft scheme would double the accommodation at Bolingbroke Hospital; and what provision had been made for the maintenance of such extra accommodation.—Mr. SOARES replied: Mr. Weir's will did not direct that income only was to be used for the establishment and maintenance of the charity. Protests and objections to the published draft scheme have been received from the persons claiming to be the committee of management of the charity; from Mr. Richard Phillips, a member of the Wandsworth Borough Council; from the Streatham Ratepayers' Association and the Streatham Chamber of Commerce; from the Wandsworth Borough Council; from Mr. Henry George Hills, one of the trustees under Mr. Weir's will; and from a meeting of the inhabitants of the parish of Streatham. The Commissioners propose to seal their scheme substantially in the form in which it was published, and if desired to authorise an appeal from it to the Chancery Division of the High Court. The donations of £5000 and £900 were not legacies. The gift of £5000 was from the Zunz Trustees and that of £900 was from Lord Wandsworth, and these gifts were conditional upon a total amount of £22,000 being subscribed by the end of July, 1907. The authorities of King Edward's Hospital Fund did not express any opinion that the terms of the will could not be carried out as provided therein. The Commissioners are aware that opinions have been expressed to the effect stated by the honourable Member. The proposed scheme will about double the accommodation at Bolingbroke Hospital. The maintenance of extra accommodation at the hospital, so far as not provided for by the residuary income of the Weir charity, will be provided from the general fund of the hospital.

The Medical Examination of Recruits for the Territorial Army.

Viscount VALENTIA asked the Secretary of State for War whether he was aware of the difficulty of getting recruits for the Territorial Army medically examined by civilian doctors owing to the small fee of 1*s.* sanctioned by regulation; and, if so, whether he would consider the advisability of increasing the fee to 2*s.* 6*d.*, at which figure it stood before the passing of the Territorial Forces Act, 1907, having in view the tax entailed on the time of the medical man who, to carry out the instructions for the physical examination of candidates, must expend nearly two hours in performing this duty.—Mr. HALDANE wrote in reply: I think the noble lord is under some misapprehension. 2*s.* 6*d.* was only paid in the Yeomanry; the Volunteers were generally examined by their regimental medical officers without payment of a fee. At present no fee is prescribed but a grant of 1*s.* is made to an association for each recruit passed. These grants form a fund from which fees for medical examination of recruits can be paid when necessary. It is, however, anticipated that in most cases the medical examination will be conducted by the Royal Army Medical Corps of the Territorial Force as part of their military duty.

The Consumption of Tuberculous Meat.

Mr. HUNT asked the President of the Local Government Board whether, in view of the fact that neither the regulations lately issued by the Local Government Board nor any other regulations prevent the importation and consumption of frozen, chilled, or tinned beef and mutton or of cured bacon or ham derived from tuberculous animals, and seeing that it was considered necessary that animals killed in this country suffering from this disease should not be allowed to be used as food, he would undertake to introduce legislation next session to protect the public from the danger of eating diseased imported foreign meat as well as from the danger of eating diseased meat of animals killed in this country.—Mr. BURNS (by written answer) replied: I do not think that it will be requisite to introduce legislation on this subject. It could be dealt with by regulations under the Public Health (Regulations as to Food) Act, 1907, should it be found needful to do so. I have already issued regulations under the Act as regards fresh pork coming from abroad, but I doubt whether there is the same need for regulations as respects cured bacon or ham. As regards beef and mutton, I understand that the requirements of foreign meat inspection are, as respects this class of meat, comparable with British standards, so that at present it does not seem necessary to issue regulations with regard to it. But if it should be found that tuberculous beef and mutton were being introduced into this country owing to laxity of inspection abroad I should be prepared to reconsider the matter.

MONDAY, NOV. 9TH.

First-aid in the Territorial Army.

Mr. CARLILE asked the Secretary of State for War whether, in view of the fact that special qualifications were necessary for giving first-aid to the injured and sick in the battalions of the Territorial Army, he would discontinue the present arrangements under which the musicians in the band of the battalion were called upon to render this assistance; whether he was aware that bandmen disliked having this duty put upon them for which they had no special qualifications; and whether he would instruct commanding officers of territorial battalions to provide an independent section to give first-aid to the injured and sick.—Mr. HALDANE replied: The honourable Member has apparently lost sight of the fact that the bandsmen in the regular army are trained as stretcher-bearers and in first-aid to the wounded. I am not aware of any reason why the bandsmen in the Territorial Force should not be competent to carry out similar work.

The Consumption of Diseased Carcasses.

Mr. HUNT asked the President of the Local Government Board whether he was aware that thousands of foreign cattle imported into this country were rejected as unfit for food on the ground of disease by the Jewish authorities, but were sold to and consumed by Christians and others; and whether he proposed to take any action in the matter.—Mr. BURNS answered: It is the fact that foreign carcasses which, for one reason or another, have been rejected by the Jewish examiners as improper for Jewish consumption are subsequently sold for food; but I do not find that I have received any representations to the effect that the carcasses have been rejected on account of disease which renders them unfit for human food. In consequence of the requirements of the Jewish law carcasses would be rejected by their examiners owing to the presence of conditions to which no objection would or need be taken by qualified meat inspectors of sanitary authorities.

Mr. HUNT also asked the right honourable gentleman whether, in view of the revelations of the methods of the system of preparing American tinned meat a few years ago, he had proofs that the methods now employed were as well inspected and as clean and sanitary as those in this country; whether, as regards fat cattle, he was aware that in the great majority of cases tuberculous disease was only apparent in the liver and lungs, which, in the case of chilled, frozen, or tinned meat, were not sent to this country; and whether he had any clear proof that if the lungs or liver were found affected with tuberculosis in cattle killed abroad there were any regulations which really prevented the meat of cattle so affected from being imported into this country and used as food.—Mr. BURNS said in reply: I can hardly institute a comparison between the two countries as to the sanitary conditions of the places in which meat is prepared for food; but I am glad to say that there is reason to believe that very considerable improvements have been made as to the sanitary conditions of American packing houses since the occurrences referred to in the question took place. As regards tuberculosis in fat cattle, the American law requires that meat for export shall be submitted to inspection and passed in accordance with prescribed regulations. In conformity with these regulations a carcass would be condemned if the lungs and liver were affected by tuberculosis unless the examination showed that the lesions were limited to an extent indicated in the regulations.

WEDNESDAY, NOV. 11TH.

The Prevention of Malaria.

Sir JOHN BRUNNER asked the Under Secretary of State for the Colonies to state whether any instructions, and, if so, instructions of what character, had been addressed to the Governors of Colonies following upon reports made by them relating to the prevention of malaria and other mosquito-borne diseases in pursuance of

requests addressed to them by the Secretary of State in June, 1906.—Colonel SEELY replied: The periodical reports received from the Governors in answer to the Secretary of State's circular despatch of June, 1906, are referred to the Advisory Committee for the Tropical Diseases Research Fund, and so far that committee has not advised the issue of further instructions. A great deal of work in the desired direction is being done in the colonies, and while it is thought well not to overload the Governors and their medical advisers with repeated instructions, the matter shall continue to have the most careful attention of the Secretary of State.

TUBERCULOSIS PREVENTION (IRELAND) BILL.

The Standing Committee of the House of Commons to which the Tuberculosis Prevention (Ireland) Bill was referred completed consideration of it on Wednesday, Nov. 4th. Mr. EUGENE WASON was in the chair.

Clause 13, which allows a sanitary authority to provide and pay for lectures and for the distribution of pamphlets relating to tuberculosis, was agreed to without discussion.

Clause 14 deals with the appointment of a bacteriologist by a county council. Its first subsection runs as follows: "A county council may appoint for their county a bacteriologist, with such qualifications and at such remuneration as may be approved by the Local Government Board, for the examination of meat or milk or milk products, and of sputum or pathological specimens, and may, at their discretion, dismiss such bacteriologist."

Sir WILLIAM COLLINS, as an amendment, moved to substitute the term "pathologist" for "bacteriologist." He argued that a pathologist rather than a bacteriologist was the proper person to carry out the work of examination under the clause.

Sir JOHN BATTY TUKE remarked that the difficulty would be met by providing that the bacteriologist should be a qualified medical practitioner.

Mr. T. W. RUSSELL said that he was prepared to accept the latter suggestion.

The amendment was defeated by 15 votes to 6. However, at the instance of Mr. RUSSELL it was agreed to insert an amendment providing that the bacteriologist should be a qualified medical practitioner.

Clause 14 as amended was agreed to.

Clause 15 lays down that "it shall be lawful for the medical officer of health of any dispensary district in a county for which a bacteriologist is appointed under this Act, and for any person authorised in writing in that behalf by the sanitary authority of any sanitary district in that county, to take at any place within the dispensary district in the case of the medical officer, or within the sanitary district in the case of such other person, samples for examination or analysis of any milk or milk products produced or sold or intended to be sold within the county."

Lord BALCARRES, as an amendment, moved to omit the words "and for any person authorised in writing in that behalf by the sanitary authority of any sanitary district in that county." He said that anyone who made these examinations and took these samples ought to be a trained man. Taking of samples was by no means a simple matter.

Mr. T. W. RUSSELL said that surely the noble lord did not mean that a bacteriologist or a medical officer was to go round a district taking samples. The clause simply allowed the sub-sanitary officer to do this. It would be quite out of the question to cause this duty to be done by the medical officer. There might even be cases where it would be preferable to send round a man who was not the sub-sanitary officer. It would not be wise to tie the hands of the authorities in this matter.

The amendment was withdrawn and the clause was subsequently passed.

The other clauses of the Bill were considered and at the conclusion the Bill was ordered to be reported to the House.

BOOKS, ETC., RECEIVED.

CASSELL AND COMPANY, LIMITED, London, Paris, New York, Toronto, and Melbourne.

Diseases of the Skin. An Outline of the Principles and Practice of Dermatology. By Sir Malcolm Morris, K.C.V.O., Surgeon to the Skin Department of the Seamen's Hospital, Greenwich; Lecturer on Dermatology in the London School of Clinical Medicine. New and enlarged edition. Revised by the Author, with the Assistance of S. Ernest Dore, M.A. Cantab., M.R.C.P. Price 10s. 6d.

DODD, MEAD, AND COMPANY, New York.

Instinct and Health. By Woods Hutchinson, A.M., M.D., Lecturer on Clinical Medicine, the New York Polyclinic. Price $1.20 net.

HEINEMANN, WILLIAM, 21, Bedford-street, London, W.C.

The Grammar of Life. By G. T. Wrench. Price 6s. net.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Über die Functionen von Hirn und Rückenmark. Gesammelte Mitteilungen. Neue Folge. Von Hermann Munk, Ord. Hon.-Professor a.d. Universität, Mitglied d. Akademie d. Wissenschaften zu Berlin. Price M.6.

Unsere Schlafmittel, mit besonderer Berücksichtigung der neuren. Bearbeitet von Dr. C. Bachem, privatdozent für Pharmakologie an der Universität Bonn. Price M.2.

Pathologisch-anatomische Diagnostik nebst Anleitung zur Ausführung von Obduktionen sowie von pathologisch-histologischen Untersuchungen. Von Dr. Johannes Orth, o.ö. Professor der allgemeinen Pathologie und pathologischen Anatomie, Direktor des Pathologischen Institutes in Berlin. Siebente, durchgesehene und vermehrte Auflage. Price M. 16.

KARGER, S., Karlstrasse, 15, Berlin, N.W.

Syphilis und Nervensystem. Neunzehn Vorlesungen für Praktische Aerzte, Neurologen und Syphilidologen. Von Dr. Max Nonne, Oberarzt am Allgemeinen Krankenhaus Hamburg-Eppendorf. Zweite, vermehrte und erweiterte Auflage. Price, paper, M.20; bound, M.22.

Über Appendicitis während Schwangerschaft und Geburt. Von Gerhard Renvall. (Aus der Gynaekologischen Klinik von Prof. Dr. Otto Engström in Helsingfors.) Price M.4.

Die Komplikationen der Stirnhöhlenentzündungen. Beiträge zur Anatomie, Pathologie und Klinik der Stirnhöhlen. Von Dr. P. H. Gerber, a.o. Professor und Direktor der Königl. Universitäts-Poliklinik für Hals- und Nasenkranke in Königsberg i. Pr. Price M.15.

Aerztliche Obergutachten aus der Praxis eines Ohren-, Nasen- und Halsarztes. Von Dr. R. Dahmer in Posen. Price M.1.60.

Die Placenta marginata und ihre Entstehung. Von Dr. P. Sfameni, Professor und Direktor der Universitäts-Frauenklinik in Perugia. Price M.2.50.

KING, P. S., AND SON, Orchard House, Westminster, London, S.W.

The Lament of the Sweated. By James Samuelson, of the Middle Temple, Barrister-at-Law. With Cover Illustration by G. Hall Neale. Price 1s. net.

LEWIS, H. K., 136, Gower-street, London, W.C.

Vaccine Therapy and the Opsonic Method of Treatment. A Short Compendium for General Practitioners, Students, and Others. By R. W. Allen, M.D., B.S. Lond., late Pathologist to the Royal Eye Hospital, late Gull Student of Pathology, Guy's Hospital. Second edition. Price 7s. 6d. net.

A Manual of Infectious Diseases. By E. W. Goodall, M.D. Lond., Medical Superintendent of the Eastern Hospital of the Metropolitan Asylums Board; formerly Medical Registrar to Guy's Hospital; and J. W. Washbourn, C.M.G., M.D. Lond., F.R.C.P., late Physician to Guy's Hospital and Lecturer in the Medical School; Physician to the London Fever Hospital and Consulting Physician to His Majesty's Forces in South Africa. Second edition, revised and enlarged by E. W. Goodall. Price 14s. net.

METHUEN AND CO., 36, Essex-street, Strand, London, W.C.

An Organic Chemistry. For Schools and Technical Institutes. By A. E. Dunstan, B.Sc. (Sheffield and London), Fellow of the Chemical Societies of London and Berlin, Head of the Chemical Department, East Ham Technical College. Price 2s. 6d.

NEMNICH, OTTO, Leipzig.

Jahrbuch über Leistungen und Fortschritte auf dem Gebiet der physikalischen Medizin. Begründet und herausgegeben von Prof. Dr. Ernst Sommer, Direktor der Universitätspoliklinik für physikalische Therapie in Zürich unter Mitarbeit zahlreicher Autoren auf dem Gebiet der physikalischen Medizin. I. Jahrgang. Price M.10.

OLIVER AND BOYD, Edinburgh.

The Transactions of the Edinburgh Obstetrical Society. Vol. XXXIII. Session 1907–1908. Price not stated.

PAUL, STANLEY, AND CO., 1, Clifford's Inn, Temple Bar, London, E.C.

Priests of Progress. By G. Colmore, Author of "The Angel and the Outcast," &c. Price 6s.

SMITH, ELDER, AND CO., 15, Waterloo-place, London, S.W.

The Human Woman. By Lady Grove. Price 5s. net.

STUBER, A. (C. KABITZSCH), Würzburg.

Taschenbuch der Therapie mit besonderer Berücksichtigung der Therapie an den Berliner, Wiener u.a. deutschen Kliniken. Herausgegeben von Dr. M. T. Schnirer, Redakteur der "Klinisch-therapeutischen Wochenschrift." Fünfte vermehrte und verbesserte Ausgabe. Price M.2.

TAYLOR AND FRANCIS, Red Lion-court, Fleet-street, London, E.C.

University of London. University College. Calendar. Session MDCCCCVIII.–MDCCCCIX. Price not stated.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Anatomie und Mechanismus der Skoliose. Von weil. Dr. Carl Nicoladoni, o.ö. Professor der Chirurgie an der Universität Graz, K.K. Hofrat. Price M.9.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CLAYTON, F., M.B., B.C. Cantab., has been appointed House Surgeon to University College Hospital.

CONDON, R. P., L.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Newcastle District o the county of Limerick.

COOPER, R. H., L.S.A., has been appointed Radiographer to University College Hospital.

CULLEN, J. P., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Inspector of School Children in Devonshire.

DOWSE, R. H., M.B., B.S. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Enniscorthy District of the county of Wexford.

GOULDEN, H. E., M.R.C.S., L.R.C.P. Lond., D.P.H. Cantab., has been appointed Medical Inspector of School Children in Devonshire.

GUNTHER, HERMANN A., M.B. Lond., M.R.C.S., L.R.C.P, Lond., has been appointed Medical Officer of Health to the Hampton Wick Urban District Council.

JEFFREYS, W. M., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Assistant to University College Hospital.

JUDAH, D., M.B., B.S., has been appointed House Physician to University College Hospital.

KELLY, W., L.R.C.P. & S. Irel., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Broadford District of the county of Limerick.

LAPAGE, C. P., M.D. Manch., M.R.C.P. Lond., has been appointed Visiting Physician to the Manchester Children's Hospital, Pendlebury.

LILLEY, C. H., M.B., Ch.B. St. And., has been appointed Second Assistant Medical Officer and Pathologist to the Dorset County Asylum.

MACK, E. G., M.B., B.S., has been appointed House Physician to University College Hospital.

MESSENGER, GEORGE B., L.M.S.S.A. Lond., has been appointed Clinical Assistant to the Hospital for Women, Soho-square, W.

QUIGLEY, L. J., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Borrisokane District of the county of Tipperary.

SEEKINGS, SOPHIA, M.B., B.S. Lond., D.P.H. Cantab., has been appointed Assistant Medical Officer to the Tottenham Education Committee.

SHAW, C. J., M.D. Edin., has been appointed Medical Superintendent of the Argyll and Bute Asylum.

SMYTH, A., M.B, M.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Leuchars District of the county of Fife.

TOSSWILL, LEONARD R., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Inspector of School Children in Devonshire.

WALKER, R. W. S., M.B., B.C. Cantab., has been appointed House Physician to University College Hospital.

WAUGH, GEORGE, B.A. Cantab., M.D., B.S. Lond., F.R.C.S., has been appointed Surgeon to Out-patients at the Hampstead General Hospital.

WHITTLE, E. D., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Casualty Officer to University College Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon and Registrar. Salary £100 per annum, with board, residence, and washing. Also House Surgeon. Salary £50 per annum, with board, residence, and washing.

ASHTON-UNDER-LYNE WORKHOUSE.—Junior Assistant Resident Medical Officer. Salary £100 per annum, with rations, laundry, and residence.

BARNSTAPLE, NORTH DEVON INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

BATH, EASTERN DISPENSARY.—Resident Medical Officer. Salary £130 per annum, with apartments, coals, gas, &c.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Assistant Surgeon. Also Assistant Physician.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road, Birkenhead.—House Surgeon. Salary £100, with board, residence, and laundry. Also Ophthalmic and Aural Surgeon.

BIRMINGHAM ASYLUM, Rubery Hill, near Birmingham.—Male Assistant Medical Officer. Salary £150 per annum, with apartments, board, laundry, &c.

BIRMINGHAM, GENERAL HOSPITAL.—Assistant Obstetric Officer.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, &c.

BOLINGBROKE HOSPITAL.—House Surgeon for six months. Salary at rate of £75 per annum, with board, lodging, and washing.

BRENTFORD UNION.—Public Vaccinator for No. 8 District.

BRISTOL GENERAL HOSPITAL.—Pathologist.

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £70 per annum, with board and residence.

BRISTOL, UNIVERSITY COLLEGE.—Demonstrator of Pathology.

CAPE COLONY, FORT BEAUFORT ASYLUM.—Assistant Medical Officer. Salary £250 per annum, rising to £300, with board, lodging, and washing.

CARSHALTON, SURREY, CHILDREN'S INFIRMARY.—Medical Superintendent. Salary £500 per annum, rising to £700, with house.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £50 per annum, with board, washing, and residence.

CORNWALL EDUCATION COMMITTEE.—Two School Medical Officers. Salary £200 per annum each, with expenses.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with rooms, board, washing, and attendance. Also Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance.

EXMINSTER, DEVON COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £150 per annum, rising to £200, with board, apartments, and laundry.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.

HAMPSTEAD GENERAL HOSPITAL.—Second Anæsthetist. Salary £25 per annum.

HARTSHILL, STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL.—Junior House Surgeon. Salary £50 per annum, with board, apartments, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Dental Surgeon.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Medical Registrar. Salary 50 guineas per annum.

JERSEY GENERAL DISPENSARY AND INFIRMARY.—Resident Medical Officer. Salary £120, with rooms.

LEICESTERSHIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum, and travelling expenses.

LIVERPOOL STANLEY HOSPITAL.—Third House Surgeon. Salary £60 per annum, with board, residence, and washing.

LONDON COUNTY COUNCIL.—Medical Officer to Employees in District No. 8.

LONDON HOSPITAL, Whitechapel, E.—Medical Registrar. Salary £100 per annum.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—House Surgeon. Salary £100 per annum, with residence, board, and washing.

MID-LOTHIAN, LINLITHGOW, AND PEEBLES COUNTIES.—Medical Officer of Health. Salary £600 per annum, with travelling expenses.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary £160 per annum.

NEW HOSPITAL FOR WOMEN, Euston-road.—House Physician and Resident Medical Officer for the Maternity Department (both for six months), Anæsthetist, and Clinical Assistants (all females).

NORTHAMPTON GENERAL HOSPITAL.—Senior Resident Medical Officer unmarried. Salary £120 per annum, with apartments, board washing, and attendance.

NORWICH, JENNY LIND INFIRMARY FOR CHILDREN, Unthank-road.—Resident Medical Officer (female). Salary £50 per annum, with board, apartments, and laundry.

POPLAR AND STEPNEY SICK ASYLUM DISTRICT.—Third Assistant Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Honorary Anæsthetist. Also Honorary Medical Registrar.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Member of the Court of Examiners.

ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, West Strand, W.C.—Clinical Assistants.

ST. GEORGE'S UNION INFIRMARY, Fulham-road, S.W.—Medical Superintendent. Salary £400 per annum and fees.

ST. GILES, CAMBERWELL.—Assistant Medical Officer. Salary £120 per annum, rising to £130, with apartments, board, and washing.

ST. THOMAS'S HOSPITAL.—Resident Assistant Surgeon. Also Surgical Registrar.

SHREWSBURY, SALOP INFIRMARY.—House Physician for six months. Salary at rate of £70 per annum, with board, washing, &c.

SOCIETY OF APOTHECARIES OF LONDON.—Gillson Scholarship in Pathology. Value £90, tenable for one year.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician. Salary £75 per annum.

TAUNTON AND SOMERSET HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Senior Resident Medical Officer. Salary £105, with board, residence, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry provided.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Horwich, in the county of Lancaster; and at Edinburgh, in the county of Edinburgh.

Births, Marriages, and Deaths.

BIRTHS.

ROOKE.—On Nov. 6th, at Fairfield, North Finchley, N., the wife of W. Stanley Rooke, M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

ARNOULD—FEARON.—On Nov. 6th, at St. Thomas's Cathedral, Bombay, Loris Arthur Arnould, M.R.C.S., to Gertrude Malleson Fearon, elder daughter of Walter Malleson Fearon, of Bronté Lodge, Jersey.

PENNELL—SORABJI.—On Oct. 17th, at All Saints' Cathedral, Allahabad, by Rev. Canon Oldham, Theodore Leighton Pennell, M.D., B.Sc., F.R.C.S., of Bannu, N. India, son of the late Dr. John Wilson Croker Pennell, of Rio de Janeiro, to Alice Maude Sorabji, M.B., B.S. Lond., youngest daughter of Rev. Sorabji Kharsedji and Mrs. Sorabji of Poona.

DEATHS.

PITMAN.—On Nov. 6th, at Cranbrook, Enfield, Henry Alfred Pitman, Kt., M.D., F.R.C.P., aged 100 years.

STEVENS.—On Nov. 8th, at Gordon House, Bocking, Braintree, Emmeline, the wife of Percy R. Stevens, L.R.C.P. Lond., M.R.C.S. Eng., aged 45 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

During the week marked copies of the following newspapers have been received:—*Staffordshire Sentinel, Glasgow Citizen, The Globe, Daily Telegraph, York Herald, Aberdeen Gazette, Aberdeen Free Press, Wolverhampton Express, Liverpool Post and Mercury, Morning Post, Cardiff News, Dublin Times, Aberdeen Journal, Edinburgh Evening Dispatch, Belfast News Letter, Halifax Guardian, Glasgow Herald, Grimsby Telegraph, Hull Mail, Birmingham Mail, Manchester Guardian, Daily News, Nottingham Evening News Morning Post, &c.*

Notes, Short Comments, and Answers to Correspondents.

FLIES.

To the Editor of THE LANCET.

SIR,—In reply to the query of your correspondent in last week's issue of THE LANCET, I may say that a few years ago I cleared an office the ceiling of which was troubled with small flies in a similar manner to that described by sealing up the room and submitting it to strong fumigation by means of an "Alformant" lamp with formalin tablets. This proved most effectual. The flies were killed and did not recur. In some such cases I believe that the woodwork in connexion with the ceiling is infested with similar larvæ to those which are sometimes so destructive in oak, a familiar phenomenon in old buildings.

I am, Sir, yours faithfully,

Health Office, Guildhall, York, Nov. 10th, 1908. EDMUND M. SMITH.

To the Editor of THE LANCET.

SIR,—In reply to Dr. George A. Crace-Calvert in THE LANCET of Nov. 7th, p. 1421, I suggest fumigating the infested rooms with sulphur. Some years ago the kitchen ceiling of a large house in the north of London was literally covered with flies about twice a year. When this occurred a pail of water containing a tin with burning sulphur was placed in the centre of the floor at night and the room shut up and made air-tight. In the morning the flies were swept up.

I am, Sir, yours faithfully,

Nov. 10th, 1908. E. R.

X.—We do not appear to have made any analysis of the proprietary medicine in question. If a sample is sent to us we shall be happy to do so.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

PATHOLOGICAL SECTION (Hon. Secretaries—Leonard S. Dudgeon, O. Grünbaum): at 8.30 P.M.

Dr. Candler: A Case of Malignant Jaundice associated with Graves's Disease.

Dr. Bolton: The Mode of Action of Gastrotoxic Serum and the Healing of Gastrotoxic Ulcers.

Mr. Dudgeon, Dr. Panton, and Dr. Ross: The Action of Hæmolytic and Splenotoxic Sera on the Blood and Tissues.

Mr. Shattock: Is there an Idiopathic Dilatation of the Bladder.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE—SPECIAL MEETING OF FELLOWS: at 5 P.M.

Discussion (adjourned from Nov. 11th):

The Influence of Heredity on Disease, with Special Reference to Cancer, Tuberculosis, and Diseases of the Nervous System.

Dr. Bashford will open the discussion on Cancer and Dr. Latham that on Tuberculosis.

THURSDAY.

DERMATOLOGICAL SECTION (Hon. Secretaries—Arthur Whitfield E. G. Graham Little): at 4.15 P.M.

Paper:

Dr. Whitfield: Inflammatory Nodules of the Hypoderm.

Cases:

Dr. Galloway and Mr. Kenneth Goadby: Cultures of a Peculiar Bacillus from a Case of Acne Rosacea.

Dr. Adamson: (1) Acne Scrofulosorum: (2) Case for Diagnosis.

Sir Malcom Morris: (1) (with Mr. Nicholls) A Case of Leprosy treated with a Special Vaccine; (2) A Case of Rodent Ulcer treated with Radium.

Mr. T. J. Hitchins: A Case of Leprosy.

FRIDAY.

ELECTRO-THERAPEUTICAL SECTION (Hon. Secretary—Reginald Morton): at 8.30 P.M.

Paper:

Mr. H. Hall Edwards: X Ray Dermatitis.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

CHELSEA CLINICAL SOCIETY, Chelsea Dispensary, Manor-street, Chelsea, S.W.

TUESDAY.—8.30 P.M., Dr. J. A. Mansell-Moullin: The Treatment of Posterior Displacements of the Uterus.—Dr. J. I. Parsons: A New Operation for Prolapsus Uteri.—Pathological Specimens (Gynæcological) will be shown by Dr. J. H. Dauber, Mr. C. English, Mr. J. H. Evans, Dr. F. J. McCann, and Dr. J. A. Mansell-Moullin.

CHILD STUDY SOCIETY LONDON, Parkes Museum, Margaret-street, W.

THURSDAY.—8 P.M., Dr. F. E. Rose: Outdoor Schools (illustrated by lantern slides).

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Dr. M. D. Ewell: The Present Status of Micrometry.—Mr. A. A. C. E. Merlin: Note on a New Growing Cell for Critical Observations under the Highest Powers.—Prof. J. A. Thomson: Studeria, a remarkable New Genus of Alcyonarians.—Mr. C. F. Rousselet: Exhibition of Slides of Mounted Specimens of Pond Life.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-quare, W.

FRIDAY.—8.30 P.M., Dr. Sandwith will show Pathological Specimens Illustrative of Bilharziosis and other Diseases.—Mr. J. Cantlie will read a paper on Colitis and its Pathological Relations to the Sigmoid Flexure and Rectum.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—12 (noon), Prof. Shattock: Atrophy. (Museum Demonstration.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. C. Fox: Clinique (Skin). 5.15 P.M., Lecture:—Dr. Langdon Brown: Nutrient Enemata and other Special Forms of Feeding.

TUESDAY.—4 P.M., Dr. E. Cautley: Clinique (Medical). 5.15 P.M., Lecture:—Sir Felix Semon: The Question of Pneumococcus Invasion of the Throat.

WEDNESDAY.—4 P.M., Mr. J. Pardoe: Clinique (Surgical). 5.15 P.M., Dr. A. E. Giles: The After Treatment of Abdominal Operations.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture—Dr. T. W. Eden: The Coincident Occurrence of Certain Gynæcological Diseases.

FRIDAY.—4 P.M., Mr. A. Lawson: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Mr. Etherington-Smith: Demonstration on Surgical Cases. 12 noon, Dr. Low: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. R. Jones: The Physical Basis of Insanity.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Scott: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Mr. Ll. Williams: Mouth Hygiene.

THURSDAY.—10 A.M., Mr. Etherington-Smith: Demonstration on Surgical Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Edwards: Urinary Cases.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Abraham: Cases of Skin Diseases.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Scott: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Sir Dyce Duckworth: Medicine. 3.15 P.M., Mr. Turner: Surgery. 4 P.M., Mr. Lawrence: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. McGavin: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 3.30 P.M., Special Lecture:—Mr. Cargill: The Examination of of the Field of Vision and its Importance.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Bradford: Non-valvular Diseases of the Heart.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. Carson); X Rays. 4.30 P.M., Medical In-patient Clinic (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles).

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 4.30 P.M., Dr. S. J. Gilfillan: Demonstration of Cases of Mental Disease at the Colney Hatch Asylum.

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson); X Rays. 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture:—Mr. H. Evans: Symptoms attributed to the Moveable Kidney.
FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester square, W.C.
THURSDAY.—6 P.M., Chesterfield Lecture:—Tuberculosis of the Skin: (1) Lupus Vulgaris; (2) Tuberculosis Verrucosa Cutis; (3) Scrofuloderma.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Dr. Ormerod: Locomotor Ataxy.
FRIDAY.—3.30 P.M., Dr. G. Stewart: Tumours of Cauda Equina.

HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Welbeck-street, W.
THURSDAY.—5 P.M., Mr. D. Grant: Some Neuroses of the Throat, Nose, and Ear.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.
THURSDAY.—4 P.M., Lecture:—Mr. Corner: The Treatment of some Cases of Talipes.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (18th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.).

THURSDAY (19th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M).

FRIDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (21st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 12th, 1908.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 6	30·10	E.	...	68	52	44	43	45	Fine
,, 7	30·00	E.	...	80	47	42	40	42	Fine
,, 8	29·63	N.E.	...	81	47	36	38	41	Fine
,, 9	29·84	N.E.	...	78	47	38	37	39	Fine
,, 10	29·99	E.	...	71	50	32	32	33	Foggy
,, 11	29·96	S.W.	...	63	54	33	49	50	Raining
,, 12	29·96	S.W.	0·08	70	56	50	52	53	Fine

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